Treasury Board of Canada Secretariat (TBS)
IT Project Manager's Handbook

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Navigating the Handbook Content

The content of the IT Project Manager's Handbook consolidates a broad and deep collection of information about the project management discipline and about its application to the IT project environment within the government.

We have identified four stages of a Project Life Cycle as well as the Treasury Board Project Approval Process. These stages are not discrete, but in fact, are inter-related throughout the life of a project. This relationship can be represented as follows:

To assist you in navigating through the document, the Table of Contents and Index have been provided. As well, graphical representations of the document contents are provided here for additional reference.

The table below cross references the content of the Handbook across the Project Planning, Execution and Close Out and Wrap-up stages.

Topic/Area	Project Planning	Project Execution	Project Close-Out
Management Activities			
• Acceptance	Acceptance Plan	Acceptance	Project Approval/Signoff
• Business Continuity Management	Business Continuity Assessment	Project Administration	Operations and Maintenance Handover Project Review
• Change Management	Change Management Plan	Change Management	Project Review
• Communication Management	Communication Management Plan	Communication Management Process	Project Review
• Contract Management	Contract Management Plan	Contract Management	Contract Review Project Review
• Estimating	Estimating Plan	Project Plan Project Administration	Project Review
• Gating	Gating Plan	Gating Project Administration	Project Reviews

		Project Reviews	
• Issue/Problem Management	Issue/Problem Management Plan	Issue/Problem Management Joint Reviews	Project Reviews Process Improvement Recommendations
• Performance Measurement	Performance Measurement Plan	Performance Measurement Project Administration	Project Review
• Operations & Maintenance Handover	Operations & Maintenance Handover Plan	Project Administration	Operations & Maintenance Handover
• Project Administration	Project Charter	Project Administration	Project Review
• Risk Management	Risk Management Plan	Project Administration Problem/Issue Management Process Project Reviews Joint Reviews	Project Review
Infrastructure Activities			
• Configuration Management	Configuration Management Plan	Configuration Management Project Administration	Project Review Process Improvement Recommendations
• Documentation	Documentation Plan	Project Administration	Project Review
• Internal Audit	Internal Audit Plan	Project Administration	Project Review
• Joint Review	Joint Review Plan	Joint Reviews	Project Review
• Quality Management	Quality Management Plan	Project Administration	Project Review Process Improvement Recommendations

• Tool Usage	Tool Usage Plan	Project Administration	Project Review Process Improvement Recommendations
• Validation	Validation Plan	Validation	Project Acceptance/Signoff
• Verification	Verification Plan	Project Administration	Project Acceptance/Signoff
Improvement Activities			
• ISO/IEC 12207 Tailoring	ISO/IEC 12207 Tailoring Plan	Project Administration	Project Review Process Improvement Recommendations
• SDLC/Methodology	SDLC/Methodology Plan	Project Administration SDLC	Project Review Process Improvement Recommendations
• Training	Training Plan	Project Administration	Project Review Personnel Performance Review Process Improvement Recommendations

Introduction

Overview

The Project Manager's Handbook has been developed as part of the Enhanced Framework for the Management of Information Technology Projects initiative for departments of the federal government.

The guiding principle for this Handbook has been to create a hierarchy of documents which cover all aspects of project management related to the governance of Information Technology projects.

The Project Manager's Handbook provides a single-point of reference to key project management principles and philosophies and to the related policies and procedures of the federal government.

The document contents include the principles of the Project Management Institute's Project Management Body of Knowledge (PMBOK), are based on the International Standards Organization's Software Life Cycle Process (ISO/IEC 12207), and support the principles of the Software Engineering Institute's (SEI) Capability Maturity Model (CMM) and other relevant Treasury Board Secretariat (TBS) and external reference materials.

The value of the approach outlined in this Handbook is that it provides a standard and thorough set of guidelines and references that support successful Project Management efforts. These are based on industry best practices and lessons learned within the IT project environment.

The checklists provided throughout the Handbook will provide the Project Sponsor, Project Manager and other project stakeholders with a means of ensuring that adequate and appropriate project administration is adopted within each project.

Intended Audience

Project Management discipline extends beyond the formally appointed Project Manager or Project Leader: it is the responsibility of business area management and the members of the project organization, including the project team members.

TBS has developed this document to not only provide the reference materials that support the project management discipline, but also to clarify the different roles and responsibilities various project participants have throughout the project life cycle.

The key participants identified within the scope of this Handbook include:

- Project Sponsor
- Project Leader
- Project Manager
- Project Team Leader
- Project Team Member

Additionally, as appropriate, specialized project team roles, such as Quality Assurance, are identified throughout the Handbook.

For a general description of roles and responsibilities.

Intended Use

This Handbook has been developed by the Treasury Board Secretariat to assist Departments with the implementation of the Enhanced Framework and, more broadly, to enhance the project management capability of the government as it relates to Information Technology projects.

The Handbook does not constitute a software development methodology. Whereas software development methodologies are concerned with "what" you have to do to be successful, a project management methodology is concerned with "how" you do things. In this sense, the software development methodology is more of a strategic approach to IT project delivery and the project management methodology is used at the operational level. This Handbook represents the foundation of a project management methodology and is intended to be used as a reference document and to be linked to and coordinated with departmental methodologies.

The Handbook describes the various principles and practices of the project management discipline that can assist in properly preparing, managing, controlling, and closing out projects. It supports the concepts of structure, continuous process improvement, and focused approaches to project delivery.

The Handbook is not, however, intended to be a "cookbook" or self-teaching guide for new or inexperienced project managers. The contents of this document must be supported by structured training in the project management concepts and discipline which are presented here. As well, project management experience comes from actually fulfilling the project manager role, usually working up from the project team leader role, through to more complete and complex project management assignments. For more information about this progression path and the skills needed for project management, see the TBS document 'Project Management Core Competencies as Defined for the Enhanced Management Framework Project'.

Handbook Organization

To streamline access to the deep content of the Project Manager's Handbook, the document is divided into five major sections. The first four sections represent a simplified project life cycle and the fifth outlines the Treasury Board Project Approval Process. These sections are not mutually exclusive. In other words, the Treasury Board Project Approval Process may apply as well as, rather than instead of, the activities and requirements outlined in the four stages of the project life cycle. The four stage life cycle is somewhat simplified against some Departmental methodologies, but provides overall structure and access to the project management disciplines, policies and procedures.

The four stages that are identified include:

1. Project Initiation: Starting from idea realization through to the development and evaluation of a business case and prioritization of the potential project idea against the Department's Business Plan and other organizational priorities and resource constraints.

2. Project Planning: Once the project is approved as a priority item and a sponsor has been secured, effective project planning is critical to successful resourcing and execution of the project activities. This stage includes development of the overall project structure, the activities and workplan/timeline that will form the basis of the project management process throughout the project lifecycle.

3. Project Execution: Against the project plan and project organization structure defined in the previous stage, the project activities are executed, tracked and measured. The project execution stage not only includes the completion of planned activities, but also the evaluation of the success and contribution of this effort and the continual review and reflection of project status and outstanding issues against the original project business case.

4. Project Close Out and Wrap-up: One of the key success criteria for continuous process improvement involves defining a formal process for ending a project. This includes evaluating the successful aspects of the project as well as identifying opportunities for improvement, identification of project "best practices" that can be leveraged in future projects, and evaluating the performance of project team members.

Note that although the "project life cycle" has been presented here in this simplified four-stage approach, your Department's methodology may, in fact, have one or more phases that fit into each of the stages above. Use your Department's mapping to this framework if it exists, or your own judgement of the most practical allocation of activities into these stages when referencing the more detailed Handbook standards, procedures and templates.

The fifth section of the document outlines the processes and requirements for Treasury Board Project Approval Process. Not all projects require Treasury Board Approval. Well-defined criteria exist to help you identify whether your project does require the added focus and discipline of this approach. Click here to access the evaluation criteria for projects requiring Treasury Board Approval.

Even if your project does not officially require that the Treasury Board Project Approval Process be applied, you can gain by referencing and adopting those components that may provide extra rigor and support to your project approach.

Navigating the Content

To assist you with navigating through the content of the document, a detailed Table of Contents and Index have been provided. As well, a series of graphical representations of the content structure is available along with a table cross-reference of how the various topics are covered across the stages of the Handbook.

Application of the Handbook Content

This Handbook has been developed to support experienced Project Managers and to act as a reference to team members, project sponsors and business area representatives.

The Handbook refers to "Procedures" as well as to "how to's" ("Plans"). The Procedures represent your Department's overall standards with regard to a specific topic or concept being presented. This includes the rationale for the adoption of the concept within projects, the requirements specific to your Department's project environment in terms of how the concept is applied, and guiding principles for the development of project plans concerning the topic.

The "how to's" represent the actual plans you develop to deal with the concept within your specific project time line. In other words, the procedure is applied at the macro, or Department level and describes "what" needs to be done, whereas the "how to's" (or Plans) are applied on an individual project-by-project basis as a means of supporting and fulfilling the requirements of the Procedure.

The Handbook is not intended to be applied in a sequential fashion - in an "A-Z" approach. Each Department will likely have a customized approach to applying the contents of this Handbook to their defined IT project environment. Click here to access your Department's description of how best to apply these concepts within your project environment.

Adaptability of the Handbook Content

The Handbook is also meant to be comprehensive, yet flexible enough to apply to all IT projects - different types and of different sizes. For example, large projects are especially susceptible to risks and project performance problems. They are usually broken into more manageable sub-projects or phases. In such cases, the approach outlined in this Handbook would therefore apply to each sub-project or phase within the larger project framework, as well as to the overall project in general.

Likewise, the delivery of operations or maintenance projects will require some tailoring of the content of this Handbook. For a more thorough explanation of how the content of this Handbook can be applied to different types and sizes of projects, click here.

Related Documents and References

As mentioned above, this Handbook has been developed within the Enhanced Framework initiative by the Treasury Board Secretariat. It includes the concepts and principles endorsed by industry-recognized organizations. For more information on each of these sources and for a description of their relationship to this Handbook see the following section:

- TBS Enhanced Framework for the Management of Information Technology Projects
- Treasury Board Manual, Information and Administrative Components, Capital Plans, Projects and Procurement (selected Chapters).
- Project Management Institute's Project Management Body of Knowledge (PMBOK)

- Software Engineering Institute's Capability Maturity Model (CMM)
- ISO/IEC 12207 Information Technology - Software Process Life Cycle Processes
- Project Management Tools

About the Handbook

The TBS IT Project Manager's Handbook has been created as part of the Enhanced Framework for the Management of Information Technology Projects initiative for the government of Canada.

It has been developed and funded by the CIO Branch of the Treasury Board Secretariat. Also involved was a Special Interest Group (SIG) including representatives from various government Departments including:

- Public Works and Government Services Canada
- Human Resources Development Canada
- Royal Canadian Mounted Police
- Health Canada
- Foreign Affairs and International Trade
- Citizenship and Immigration Canada
- Revenue Canada
- Department of National Defense

The document content and structure was developed by the Software Productivity Centre Inc., drawing on consulting experience from similar projects, and from their process improvement tools which include EssentialSET and ISOPlus.

Adaptability of the Handbook Contents

Small Projects

Small projects will not likely allow for additional project administration that may add to the overhead of the cost and progress of the project. In such projects it is possible to combine some of the concepts within this Handbook into the overall Project Plan rather than developing specific individual plans for each topic. However, such consolidation of plans should be approached with caution and the potential impact of doing so, and the rationale for this approach, should be clearly considered and documented. Your Department may develop specific guidelines for "small projects" that will assist you in determining when such tailoring of the Handbook contents is appropriate.

Large Projects

Large projects can present added risk and management control issues to the IT project environment. The increased number of deliverables, resources, and the expanded scope of larger projects require a more structured approach. For example, such projects are often broken into phases, or releases or may even be divided into a series of sub-projects under the overall guidance and control of a "macro" project.

In such cases, the gates we have identified to exist between "stages" (Initiation, Planning, Execution, Wrap-up and Close Out) of a large project are supplemented by additional gates within each sub-project or phase. This approach represents a "spiral" relationship between the stages described within this Handbook and the gating process. Both the macro, or overall project must be managed at the same time as the sub-projects or phases. This dual control will provide additional management attention to overall project performance and progress.

Operations and Maintenance Projects

It is important to differentiate operations and maintenance projects from operations and maintenance activities. "Projects" have been defined as having a specific start and end date, and deliverables that, when completed, meet specific objectives outlined for the project.

Operations and maintenance activities should not be managed as projects as this would add undue rigor and overhead to the daily operational process. However, defined projects that are initiated within these areas should adapt those components that are applicable to the product being modified.

For example, the Project Initiation (ending in a funding investment decision) and Project Planning stages are still critical for operations and maintenance projects. However, since most of the Plans will have been developed during the initial project development life cycle, these plans should not be re-created but rather should be referenced and modified as necessary within the scope of the new project.

Your Department may develop specific guidelines for operations and maintenance projects that will assist you in determining when such tailoring of the Handbook contents is appropriate.

General Roles/Responsibilities

The project organization structure supports the completion of project activities and provides an adequate level of oversight, review and contribution from necessary parties.

Clearly defining the project organization structure up-front is a critical success factor for projects.

Your project may not require a separate individual to fulfill each of these roles, but it is important that the tasks and responsibilities associated with each role are clearly assigned to specific project team members. For example, in a smaller project, the Project Manager may also fulfill some of the project team member activities. On larger projects, it is critical that a dedicated Project Manager (with no other responsibilities) be identified and assigned to the team.

The roles and responsibilities outlined below provide a baseline from which your department can develop specific and tailored definitions. Your project plan should include specific roles and responsibilities that are consistent with your department's definitions.

Departmental Executive Committee

- oversees all project activities from the Department point of view.
- established priorities for project funding and resource allocation.
- allocates available budget to defined projects.
- resolves escalated problems and issues.

Project Sponsor

- is responsible for providing support to the IT Project Manager (and Business Area Project Manager, where one exists) and for escalating any issues or problems that cannot be resolved within the project team.
- is responsible for ensuring that the Business Area project team members have adequate time and resources available to contribute to their assigned project activities.
- is responsible for appointing a Business Area Project Manager if necessary.

Business Clients

- Business clients represent the final end-user or benefactor of the project deliverables/objectives. They play an important role in defining project requirements and in ensuring that delivered features meet their business requirements
- During the project lifecycle, the Business Clients are represented by the Business Area Project Manager and Business Area Project Team Members

Business Area Project Manager

- where a project is sufficiently large, a Business Area Project Manager may be appointed to manage the day-to-day operations of the project activities within the Business Area.
- is responsible for liaising with and supporting the requirements of the IT Project Manager.
- is responsible for updating the Project Sponsor and for ensuring that any outstanding issues or problems are adequately raised to the Project Sponsor as necessary.
- on smaller projects, this role may be fulfilled by the Project Sponsor in direct contact with the IT Project Manager.

Project Leader

- must ensure that the proper procedures have been followed to identify, evaluate and submit for review project plans that have been developed following the Enhanced Framework for the Management of Information Technology Projects and that, where appropriate, the necessary steps have been taken for those projects that meet TBS submission/approval requirements.
- is responsible and accountable for the overall structure, progress and decision making on the project including problem resolution, escalation, and resource allocation
- appoints and manages the IT Project Manager and supports the IT Project in completing the required project activities and meeting the project objectives
- continually reviews project progress and results against the original Business Case and identifies any requirement to modify the Business Case, update project plans (including Risk Management and Resource plans), or cancel the project if it is not meeting the intended objectives and benefits.
- liaises with the Project Sponsor throughout the project lifecycle to keep them appraised of project progress, issues requiring attention and/or resolution, and to identify and confirm business area objectives and priorities.
- notifies other federal government departments or agencies who may be affected by a specific project.
- ensures that all relevant project submissions and approvals (see Treasury Board Project Approval Process) have been obtained prior to initiating any part of the project.
- consults as early as possible with Treasury Board Secretariat, particularly for larger projects of higher risk and complexity, proposing a suitable management framework for staff concurrence.

IT Project Manager

- is appointed by the Project Leader
- is responsible for overseeing day-to-day operations within the project team
- develops the project plans (including the work breakdown structure, timeline, resource plan, training plan, risk management plan and other plans identified in the Planning phase)
- obtains approval on project plans and on issue, problem and change requests as outlined in the project responsibilities
- in collaboration with the Project Leader and Project Sponsor, is responsible for ensuring that necessary Gate Reviews are completed and that Project Close Out and Wrap-up activities are performed and documented
- escalates any outstanding issues or problems that cannot be managed within the project environment to the Project Leader or Project Sponsor as appropriate.

IT Project Team Leader

- is responsible for assisting the IT Project Manager throughout the project lifecycle.
- on smaller projects, the IT Project Team Leader may primarily provide an "assistance" role to the IT Project Manager while also performing specific project tasks. In such case, the IT Project Team Leader will likely be junior in position and experience to the IT Project Manager.
- on larger projects, the IT Project Team Leader will be responsible for overseeing the day-to-day operations within a specific sub-team of the project. This role may include many of the roles normally held by the IT Project Manager, who on such a project will be more involved with overall coordination and control of the various project sub-teams.

Project Team Members

- includes representatives from both the IT/IM area and the Business Area.
- are responsible for contributing, as requested, to project planning (by providing task estimates, identifying potential risks, and determining training requirements, for example).
- are also responsible, throughout the project, for completion of assigned project deliverables, for tracking and recording project progress against the defined workplan, and for identifying new risks, problems, issues and change requests through the project lifecycle.

- are responsible for identifying "lessons learned" and for contributing ideas for continuous process improvement.

Quality Assurance

- The Quality Assurance team assures that the analyses have been conducted in accordance with the Project Identification Procedure and provides input to ensure completeness of the analysis within this framework.

Independent Validation Test (IVT) Team

- Plans and performs Independent Validation Testing, and approves the system or software product before Acceptance Testing can begin

Training Group

- Some organizations set up a separate training group to provide training resources for all the organization's project personnel. The Training Group may develop in-house training and/or look for and coordinate off-site training.

Measurement Group

- The foundation for Continuous Improvement efforts is the ability to track and evaluate project metrics. Some organizations set up a separate measurement group to collect and analyze project metrics. This is useful because effective measurement requires a specialized set of skills, enough dedicated time to do the work, and project independence to ensure unbiased recording and reporting of results.

Internal Audit

- The Internal Audit group is a separate organization (independent from the Project Team) who performs one or more project audits during a project's lifecycle. The timing and scope of these reviews will be defined within the Project Planning stage.
- Where an internal audit group does not exist or is not appropriate for the scope of the project, the QA Team my perform the project reviews.

PWGSC

- PWGSC ensures that the appropriate procurement activities are dealt with in the project environment and assists with the acquisition of specific resources throughout the project life cycle.
- PWGSC also ensures that government standards and policies are complied with.

Each section of the Handbook clearly identifies and highlights additional or more specific project team members roles and responsibilities related to the specific stage or activity within the project.

Assigning Project Team Members

When considering the appointment of a Project Manager or Project Team Leader to a specific project, Project Leaders and Project Sponsors are encouraged to refer to the Treasury Board's "Project Management Core Competencies as defined for the Enhanced Management Framework Project" (August 29, 1997, Project Management Office, CIO Branch, TBS).

TBS Enhanced Framework for the Management of Information Technology Projects

Treasury Board has directed departments to apply the Enhanced Framework for the Management of Information Technology Projects to existing projects, as applicable, and to all future information technology projects. Departments are required to attest to the Enhanced Framework when seeking Treasury Board project approvals.

Implementation of the Enhanced Framework is designed to ensure that government information technology projects fully meet the needs of the business functions they are intended to support, deliver all expected benefits and are completed on time, to cost and functionality. It is anticipated that implementation will also, over time, provide departments with increased levels of authority.

There are four key principles outlined in the framework:

1. Projects are aligned with and support the business directions;
2. Clear accountabilities are established;
3. Project Managers are developed in, and work within, a corporate discipline; and,
4. Project management decisions are based on risk management.

This Handbook supports each of these principles in the following ways.

Projects Are Aligned With And Support the Business Directions

The Handbook includes substantial support and guidance for the Project Sponsor, Project Leader and Project Manager with respect to aligning projects with the business. The Project Initiation stage and Project Planning stage activities have been developed to include the requirements to develop a Business Case and to continually reference back to the objectives outlined in the Business Case throughout the project life cycle.

Further, specific requirements for projects requiring Treasury Board Approval are also outlined in the Handbook.

Clear Accountabilities Are Established

The Project Planning stage identifies the need to clearly define the project organization structure and to assign specific roles and responsibilities to each team member. Throughout the Handbook, reference is made to specific roles and responsibilities to clearly outline who does what, when, and to what level of quality.

Project Managers Are Developed In, And Work Within, A Corporate Discipline

The Project Manager's Handbook is not intended to be a self-guided training tool, but it does support the enhancement of junior project managers' skills and confirmation of more senior project managers' approach to the project administration.

The Handbook also acts as a single point of reference and collection of key project management policies, disciplines and practices and provides a framework for the government's project management methodology.

Project Management Decisions Are Based On Risk Management

All projects face some degrees of risk. Traditionally, however, IT projects have been even more susceptible to the negative impacts of risk towards project success.

Within the Handbook, Risk Management approaches are specifically discussed but even in the broader sense, the entire Handbook contents can be attributed to improved project performance.

This is accomplished through the definition and then standard application of the practices and procedures outlined in the Handbook. This content is based on industry best practices and lessons learned from other IT project environments.

For More Information

For more information, see The Enhanced Framework for the Management of Information Technology Projects (Parts I and II).

Project Management Institute

Since its founding in 1969, Project Management Institute (PMI) has grown to be the organization of choice for project management professionalism. With over 31,000 members worldwide, PMI is the leading nonprofit professional association in the area of Project Management. PMI establishes Project Management standards, provides seminars, educational programs and professional certification that more and more organizations desire for their project leaders.

PMI has published the Project Management Body of Knowledge (known as PMBOK) which includes nine areas of project management expertise. These nine areas are:

1. Project Integration Management
2. Project Scope Management
3. Project Time Management
4. Project Cost Management
5. Project Quality Management
6. Project Human Resources Management
7. Project Communications Management
8. Project Risk Management
9. Project Procurement Management

The Handbook includes and supports the concepts outlined in the PMBOK. This coverage is as follows:

- Integration management is discussed in the Overview to the key (Adaptability),
- Scope management is covered in Project Initiation and Project Planning;
- Time management is addressed through estimating, time tracking, and performance and progress measurement (project administration);
- Cost management is addressed through estimating and performance and progress measurement as well as in the Project Initiation stage through business case analysis;
- Quality management is handled under project planning, project execution and project wrap-up;
- Human resources management is handled through definition of roles and responsibilities, joint reviews, performance evaluations and project reviews;

- Communications management is initially identified in Project Planning and executed both in Project Execution and Project Wrap-up (the reviews and performance improvement activities in wrap-up represent additional means of communicating project status, success, and process improvement ideas);

- Risk management is addressed in Project Initiation, Project Planning, and Project Execution. It is also specifically identified within the TB Project Approval Process; and

- Procurement Management is discussed within the Project Initiation Stage (under the business case - options analysis section).

Software Engineering Institute

The Software Engineering Institute (SEI) is a federally funded research and development centre established in 1984 by the U.S. Department of Defense with a broad charter to address the transition of software engineering technology. The SEI is an integral component of Carnegie Mellon University and is sponsored by the Office of the Under Secretary of Defense for Acquisition and Technology [OUSD (A&T)].

SEI has developed a series of assessment /process improvement models referred to as "Capability Maturity Models" (CMM). The Handbook includes and supports the concepts outlined in the Capability Maturity Model for Software (SW-CMM, or just CMM as this model was the first one developed by SEI) .

The SW-CMM is comprised of 5 maturity levels (see below). Each level is decomposed into a number of Key Process Areas (or KPAs) that indicate the areas an organization should focus on to improve its software process. Each KPA consists of a set of goals and activities that are required to stabilize that process area.

An overview of the 5 maturity levels and KPAs is given below. The main Handbook activity(s) that map to the various KPAs are noted, although whether or not the Handbook activities are sufficient to meet the requirements of a particular KPA has not been determined.

- Level 1 - The Initial Level (no defined process)
- Level 2 - The Repeatable Level
    - Requirements Management (PMH: Requirements Specification)
    - Software Project Planning (PMH: Project Planning Stage, Project Administration)
    - Software Project Tracking & Oversight (PMH: Project Administration)
    - Software Subcontract Management (PMH: Contract Management)
    - Software Quality Assurance (PMH: Quality Management, Internal Audit)
    - Software Configuration Management (PMH: Configuration Management)
- Level 3 - The Defined Level
    - Software Product Engineering (PMH: Requirements Specification, Acceptance Testing)
    - Peer Reviews (PMH: Joint Review)
    - Integrated Software Management (PMH: SDLC/Methodology, Project Administration)

  - Intergroup Coordination (PMH: Communication Management)
  - Organization Process Focus (PMH:SDLC/Methodology, ISO 12207 Tailoring)
  - Organization Process Definition (PMH: SDLC/Methodology, ISO 12207 Tailoring)
  - Training Program (PMH: Training)
- Level 4 - The Managed Level
  - Quality Management (PMH: Quality Management)
  - Process Measurement and Analysis (PMH: Metrics, Process Improvement Recommendations)
- Level 5 - The Optimized Level
  - Process Change Management (PMH: SDLC/Methodology, Process Improvement Recommendations, Change Management)
  - Technology Innovation
  - Defect Prevention

ISO/IEC 12207 - Information Technology Software Life Cycle Processes

The International Standards Organization (ISO) and the International Electrotechnical Commission (IEC) have developed the Information Technology Software Life Cycle Processes standard (ISO/IEC 12207) in recognition of the need to provide a common framework within the software discipline.

"Software is an integral part of information technology and conventional systems, such as transportation, military, medical care, and finance. There is a proliferation of standards, procedures, methods, tools, and environments for developing and managing software. This proliferation has created difficulties in software management and engineering, especially in integrating products and services. The software discipline needs to migrate from this proliferation to a common framework that can be used by software practitioners to "speak the same language" to create and manage software." (From ISO/IEC 12207: 1995 (E), Introduction)

The standard itself is organized into three major components:

1. Primary Life Cycle Processes:
    - Acquisition
    - Supply
    - Development
    - Operation
    - Maintenance
2. Supporting Life Cycle Processes
    - Documentation
    - Configuration Management
    - Quality Assurance
    - Verification
    - Validation
    - Joint Review
    - Audit
    - Problem Resolution

3. Organizational Life Cycle Processes

- Management
- Infrastructure
- Improvement
- Training

The Handbook includes and supports the concepts outlined in ISO/IEC 12207, primarily focusing on the Supporting Life Cycle and Organizational Life Cycle processes.

Project Management Tools

The IT Project Manager's Handbook has been developed as part of the Solutions Set for the Enhanced Framework for the Management of Information Technology Projects. Another component of this solution set is the Project Management Tools review. The tools identified in this review support the concepts and principles outlined in the Handbook and can provide assistance to the Project Manager and Project Team in completing required project activities and in managing, tracking and controlling project progress.

Project Initiation

Project Initiation is the first step in the process used within the government to determine which projects are appropriate to fund.

Project Initiation includes the activities starting from idea realization through to the development and evaluation of a business case for potential projects. It also includes prioritization of the potential project idea against the Department's Business and Information Management Plans and other organizational priorities and resource constraints.

All projects require a managed approach to identification and initiation and such an approach is presented in this section. Additionally, where the project requires Treasury Board Approval, the Treasury Board Project Approval Process must also be followed. However, even where a project does not specifically require Treasury Board Approval, you may find it useful to follow the general outline of the Treasury Board Project Approval Process as it represents a thorough and structured approach to project definition.

Please note that the Initiation Process outlined here and the Treasury Board Project Approval Process are not mutually exclusive. If Treasury Board Approval is not required, the steps outlined in this process will be sufficient for effective Project Initiation. Where Treasury Board Approval is required, both the activities outlined in this stage and the activities identified in the Treasury Board Project Approval Process will be necessary.

Why do we need a Project Initiation Process?

A defined Project Initiation Process ensures that all potential efforts are evaluated against a reasonable business case and are prioritized within the overall framework of the Department's strategies and plans, and consistent with the strategies and plans of the government in general.

The project initiation process ensures that each project is well defined and positioned within the overall resource constraints of the Department.

Specifically, the purpose of the project initiation process is:

- To ensure that an appropriate business case is developed for all potential projects and that only those that warrant the investment are pursued
- To manage the workload of individual departments conducting projects, and to clearly identify interdependencies of projects both within Departments and across Departments
- To adequately identify resource requirements for projects, especially as they relate to interdisciplinary needs (Internal Audit, Quality Assurance, etc.)

Project Initiation Roles/Responsibilities

Project Sponsor

- The Project Sponsor must ensure that the proper procedures have been followed to identify, evaluate and submit for review project plans that have been developed supporting this Project Initiation procedure.

- The Project Sponsor is required to ensure that the required analysis is complete, according to the Project Initiation procedure.

Project Leader

- The Project Leader appoints the appropriate Project Manager to the project (see Project Management Core Competencies as defined for the Enhanced Management Framework Project).

- The Project Leader ensures that the Project Manager has access to the required data and analysis to perform the Project Initiation activities.

Project Manager

- The Project Manager may not have been appointed at the time the project initiation activities are begun. If they have been appointed, they will be responsible for developing the required analysis, according to the project identification procedure.

Project Team Leader

- The Project Team Leader will likely not have been appointed at the time of project initiation. If they have been appointed, they will be responsible for assisting the Project Manager in developing the required analysis, according to the project identification procedure.

Project Team Members

- The Project Team Members will likely not have been appointed at this point in the project, and will therefore not have any responsibility in this stage.

Quality Assurance

- The Quality Assurance team assures that the analysis has been conducted in accordance with the Project Initiation procedure and provides input to ensure completeness of the analysis within this framework.

The above roles and responsibilities may be detailed further within the stage activities outlined below.

Stage Content:

- Requirements Specification
- Business Case
- Project Approval Decision
- Checklists for Success

Business Case - Requirements Specification

The Requirements Specification is a detailed description of the project objectives, scope, deliverables, approach and required team structure. It defines the "boundaries" for the project and explicitly specifies system/product requirements and features. It also provides a documented reference of the project team's understanding of the product/system requirements, the deliverables required to provide the product/system, and the resources and timelines needed to achieve the project objectives.

The Requirements Specification is necessary for a Business Case to be completed. The Requirements Specification will define the project "needs" against which alternatives and options can be evaluated within the context of the Business Case.

Why do projects need a Requirements Specification?

The Requirements Specification provides a documented description of the project boundaries. It is used as a communications tool between the IT project team, the Business Area project team, and the Business Area clients to ensure understanding and agreement of the project deliverables. The purpose of the Requirements Specification is:

- to provide a clear and well-defined description of the project requirements;
- to outline the project approach, timeline and project organization structure;
- to provide a communication tool for all project team members;
- to provide a baseline against which project scope issues can be evaluated and against which changes can be incorporated; and,
- to act as a basis for detailed analysis and design in subsequent phases of the project

Requirements Specification Procedure

Refer to your Department's Requirements Specification Procedure for a description of the Requirements Specification content and application. Your project's Requirement Specification should adhere to the details outlined in the Requirements Specification Procedure.

Requirements Specification Roles/Responsibilities

See also General Roles/Responsibilities

IT Project Manager

- The IT Project Manager is responsible, with the Business Area Project Manager, for developing the requirements specification. Business Area Clients may also be involved in the definition and approval of the requirements specification.

Business Area Project Manager

- The Business Area Project Manager contribute to the definition of requirements and the development of the requirements specification document.
- They are also responsible for including, as necessary, input from the Business Area Clients.
- The Business Area Project Manager is responsible for obtaining "sign-off" on the requirements specification document (which may also require approval of the Project Sponsor).

Business Area Clients

- The Business Area Clients may be requested to provide input for the requirements specification document, which will be coordinated by the Business Area Project Manager.

Requirements Specification - How to do it?

The requirements specification involves the definition of project needs, project approach, timelines and project organization structure.

Use your department's requirements specification outline (which may be documented in your SDLC.

Project Initiation - Business Case

A business case puts the investment decision in a strategic context, and positions the business objectives and options that will affect both the decision and the investment itself. A business case provides the information necessary to make a decision about whether a project should proceed. It is the indispensable first activity in the lifecycle of an IT investment.

Why do projects need a business case?

The Business Case is not only used during the project initiation stage, it is referenced throughout the project life cycle to ensure that business objectives and expected benefits are being realized. The purpose of the business case includes:

- to provide an analysis of all the costs, benefits, and risks associated with a proposed investment and with the reasonable alternatives to the proposed investment;
- to provide a "baseline" against which to measure project performance, both during the project lifecycle and at project completion; and,
- to maintain a business focus to all projects, regardless of their technology components or capabilities.

Business Case Procedure

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process and is the foundation of the tools in this section of the Handbook.

Business Case Roles/Responsibilities

See also General Roles/Responsibilities

Project Sponsor

- The Project Sponsor is responsible, with the Responsibility Centre (RC) managers, for developing the business case to evaluate proposed IT investments.

Project Leader

- The Project Leader works with the Project Sponsor to identify the relevant IT considerations to complete the business case analysis and to identify required resources and timelines for the proposed project.

The Business Case Process - How to do it?

The business case process involves a number of steps which are each detailed further below:

- Option Identification
- Cost Scenarios
- Benefits Definition and Analysis
- Risk Assessment and Management
- Option Analysis and Selection
- Prepare the Contents
- Make the Case

Business Case - Option Identification

There are often a number of potential ways to address a business need for a technology solution. These options must be clearly identified within the scope of the Business Case. If an inappropriate decision is made, significant investments in time and effort may be expended that result in little or no realized benefit.

"Under the Treasury Board's Management of Information Technology policy, it is up to managers to evaluate, select, and fund information technology projects on the basis of a business-case approach. The business case should show how the technology will lead to enhanced value or improved service. Managers should also examine new project proposals to identify opportunities to share existing information, technology, applications, and facilities." (Creating and Using a Business Case for Information Technology Projects)

Why do projects need Options Identification?

The guide for creating and using a business case (referenced above) states:

> "Remember that there is no single solution to any problem. Until you look at all the available options and alternatives, it is impossible to know which is the best way to deal with the business situation you are facing."

The purpose of the options identification step is to ensure that appropriate alternative solutions have been considered, so that the relative costs and benefits of each alternative can be evaluated and an appropriate business decision can be made.

This identification of solution options contributes to the selection of the appropriate Procurement Strategy for the chosen product or service. The options generally considered within the options identification include: build, buy, or buy and customize. They "buy and customize" option may include the purchase of a complete system that requires minimal custom modifications, or may include a number of component products (sometimes called "best of breed") that are then linked together with custom code to create a complete and integrated system.

Option Identification - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including the Option Identification stage (see Chapter 2).

Business Case - Cost Scenarios

"A sound investment decision must include all costs associated with the investment, no matter who pays for them. The business case should be based on the full cost of the system, from initiation through development and implementation, and the estimated annual cost of five years of operation." (Creating and Using a Business Case for IT Projects)

Why do projects need Cost Scenarios?

There are many costs associated with the design, development, implementation and operation of an IT solution. Some of these costs are clearly apparent during options analysis, but others remain "hidden" or are secondary costs related to the ongoing operation of the solution. The Cost Scenarios section of the business case provides the IT Project Leader and the Project Sponsor with the available information on which to base their options evaluation and selection.

Cost Scenarios - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including the Cost Scenarios stage (see Chapter 3)

Business Case - Benefits Definition and Analysis

All IT projects are initiated to meet a business need. The benefits definition and analysis section of the business case helps you "identify and quantify the potential benefits of a proposed IT investment. It also discusses the development of a benefit realization plan to ensure that conditional benefits are realized." (Creating and Using a Business Case for Information Technology Projects)

Why do projects need Benefits Definition and Analysis?

The Benefits Definition and Analysis section of the business case allows the IT Project Leader and the Project Sponsor to see a clear identification of what the anticipated benefits of the IT system or product solution are, and how they may be realized. Too often, IT projects are initiated more on the basis of "we can do it", rather than "we should do it" (from a benefits realization point of view).

The Benefits Definition and Analysis section considers:

- comparative advantages; and,
- level-of-service advantages

for the proposed IT solution.

This analysis provides the foundation for the solution analysis and ultimate decision on how best to meet the business needs and to deliver the expected and required benefits.

Benefits Definition and Analysis Roles/Responsibilities

See General Roles/Responsibilities

Benefits Definition and Analysis - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including the Benefits Definition and Analysis stage (see Chapter 4).

Business Case - Risk Assessment and Management

"Every project is imperiled by certain risks. IT implementation projects possibly face more risk than other types of projects because information system development is an evolving discipline, and IT continues to change very rapidly. Information systems development is maturing as a discipline, however, and methodologies have been developed to help assess and manage the risk associated with IT development projects." (Creating and Using a Business Case for Information Technology Projects)

Why do projects need Risk Assessment and Management?

All project plans and estimates are developed based on certain assumptions. These assumptions, if they are not fulfilled, pose risk to the project success. These "known" or identified risks, along with unanticipated risks must be carefully and diligently managed within the project life cycle in order to minimize the impact on the overall project resources, schedule, and delivery.

Risk Assessment and Management does not eliminate the possibility of something "bad" happening within the project scope, and does not ensure that the project manager will not face any problems or issues during the project. It is, however, based on the premise of "mitigation" through careful and thoughtful analysis, evaluation and planning.

The Risk Assessment and Management section of the Business Case will serve as the foundation for the Risk Management Plan (see Project Planning). With an effective Risk Assessment and Management approach, the project manager can more appropriately respond to unanticipated or unwelcome events during the project life cycle, rather than reacting in "fire fighting mode" when something unusual occurs.

Risk Assessment and Management Roles/Responsibilities

See General Roles/Responsibilities

Risk Assessment and Management - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including the Risk Assessment and Management stage (see Chapter 5).

Business Case - Option Analysis and Selection

"Once you have identified the options and examined their costs, benefits, and risks, you must choose one to recommend." (Creating and Using a Business Case for Information Technology Projects) The Option Analysis and Selection section of the business case, allows for the identification and selection of the most beneficial investments. The above referenced guide further states that:

> "Project approval must be based on a business-case analysis that relates each investment directly to the business function and demonstrates the benefits of the investment to the department or to the government as a whole."

Why do projects need Option Analysis and Selection?

The Option Analysis and Selection stage of the business case process ensures that all of the available information about the requirements, the alternative solutions and the associated costs and benefits of each one, are clearly documented and evaluated before a decision is made as to the best way to proceed.

The Option Analysis and Selection is grounded in a "good understanding of your organization's goals, its business processes, and the business requirements you are trying to satisfy. These considerations govern which of the potential solutions will best meet your needs."

The result of the Option Analysis and Selection process is the confirmation of the appropriate Procurement Strategy for the identified solution. The potential options (build, buy, or buy and customize) that were identified in the Options Identification step are now evaluated in this step and a final selection is made based on the business needs.

Option Analysis and Selection Roles/Responsibilities

See General Roles/Responsibilities

Option Analysis and Selection - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including the Option Analysis and Selection stage (see Chapter 6).

Business Case - Prepare the Contents

"Once the analysis has been completed and an option has been recommended for approval, assemble the findings into a concise report that can be used to make informed decisions. The report should be consistent with other documentation used for making decisions. It should also address the various topics identified in this guide, including an analysis of options, costs, benefits, risks, sensitivity analysis, assumptions, and a recommendation." (Creating and Using a Business Case for Information Technology Projects)

Why Prepare the Contents?

Publishing the business case not only provides the documentation necessary for management to evaluate the option recommended and to make a funding decision, but it is also used throughout the project life cycle to ensure that business objectives and expected benefits are being realized.

Preparing the Contents Roles/Responsibilities

See General Roles/Responsibilities

Preparing the Contents - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including preparing the contents (see Chapter 7).

Business Case - Make the Case

"Even the best analysis and documentation will be useless unless the decision-makers buy in and give the necessary approvals. This chapter provides suggestions that will help ensure that your recommendations get a fair hearing." (Creating and Using a Business Case for Information Technology Projects)

Why Make the Case?

The key output of the Project Initiation Stage is to obtain a Project Approval Decision. This is sometimes referred to as the "Go/No Go" decision and reflects the organizations agreement to fund the project, or decision to not pursue the project.

We have mentioned previously that without clear sponsorship and support for the project, the project should not proceed. Making the Case provides the opportunity to present the Business Case and to allow the approving parties to evaluate the information presented in order to make an informed Project Approval Decision.

Make the Case Roles/Responsibilities

Project Sponsor

- is responsible for presenting the Business Case to the approving parties (Making the Case).

Project Leader

- assists the Project Sponsor in preparing to Make the Case and may be involved in the presentation to approving parties.

See General Roles/Responsibilities

Make the Case - How to do it?

TBS has developed a guide called 'Creating and Using a Business Case for Information Technology Projects'. This document identifies the overall procedure and requirements of the business case process, including suggestions for assisting in the process of Making the Case (see Chapter 8).

Project Initiation - Project Approval Decision

We have mentioned that one of the hazards of IT projects is the inclination to "get on with it" without proper evaluation of the business case (the costs and anticipated benefits) for the proposed solution.

The Project Approval Decision is the final step in the project initiation process. At this point, the result of the business case analysis is documented and the final "go, no go" decision is recorded.

Why do projects need a Project Approval Decision?

Formally documenting the Project Approval Decision provides various benefits to the organization including:

- an audit trail of how and why a project "go, no go" decision was made;
- a list of active projects and their intended costs and benefits; and,
- an opportunity to identify lessons learned and to recommend improvements for future solution identification, evaluation, and their business case processes

Project Approval Decision Roles/Responsibilities

Project Sponsor

- is responsible for ensuring that a well-documented result is prepared for the "go/no go" decision for the project, and that where a "go" decision is rendered, that the appropriate resources are assigned and committed to the project;
- ensures that all affected participants are notified of the project approval decision.

Project Leader

- ensures that appropriate stakeholders are involved in the "go/no go" decision.

See General Roles/Responsibilities

Project Approval Decision - How to do it?

Each department should have its own repository of proposed projects and the associated project approval decisions. This should include a clearly documented audit trail of the project analysis process (including reference to the business case).

Project Initiation - Checklists for Success

Checklist	Description
Project Initiation Checklist	Lists the activities identified in the PMH for the Project Initiation Stage; can be used to verify that the components outlined in this stage have been addressed.
Deputy Minister's Guide to Successful IT Projects	Consider the questions on the first page and in the first section of the checklist, 'Should the Project be Started?'.
Project Manager's Guide to Successful IT Projects	Consider the questions in Part 1, Section II, 'Support for the Business', and in Section III, 'Accountability'.

Project Planning Stage

Once the project is approved as a priority item and a sponsor has been secured, effective project planning is critical to successful resourcing and execution of the project activities. This stage includes development of the overall project structure, the activities and workplan/timeline that will form the basis of the project management process throughout the project lifecycle.

Your approach to Project Planning will follow your Department's procedures and guidelines. However, if your project requires Treasury Board Approval, you will also need to consider and address those issues outlined in the Treasury Board Project Approval submission, approval, and review processes. During this stage, your project may specifically require a submission for Effective Project Approval (EPA).

This section of the Handbook is organized to provide the "general" project planning principles. The Treasury Board Project Approval Process is defined in full detail in a separate section.

Why do we need a Project Planning Process?

It has been said that problems with project delivery are always known early on in a project, but that it is often difficult, or unpopular to address these issues. And, we are all familiar with the adage that it costs more to fix things after implementation, than it does to design and develop them right the first time!

A thorough Project Planning Process provides the structure and procedures to ensure that adequate time and effort is put into identifying the project scope, deliverables, resource requirements, and risks. The Planning Process also sets out procedures that will be used within the project for tracking progress, utilizing tools and methodologies, communicating with the project team members, users and other stakeholders, and resolving issues, problems and addressing change requests.

Project Planning also allows the Project Manager to structure the project in a way that will maximize delivery capability while minimizing risk. For larger projects, it may be practical to break the project into phases, releases, or sub-projects. For smaller projects, certain activities and roles may be combined for efficiency of delivery.

This upfront planning alleviates the risk of the Project Manager having to operate "on the fly" to develop contingency approaches when the project execution doesn't go "as expected". Project Planning also allows for the management of expectations of all project team members and support resources by outlining exactly what is required, how it is intended to be delivered, and the timeline that will be followed.

Project Planning Roles and Responsibilities

See also General Roles/Responsibilities

IT Project Leader

Because effective project planning is so critical to the overall success of the project, the IT Project Leader should ensure that all appropriate planning requirements have been addressed.

This can best be accomplished by ensuring that the first "gate" within the Planning process is the approval of the overall project plan.

This can include as little as a Project Planning Checklist review to verify that the components outlined in this process have been addressed, or a more formal and in-depth reading and confirmation of the contents of the project plans.

Project Sponsor

Again, due to the significance of effective project planning, the Project Sponsor may also want to review the overall project plan to ensure that all of the required planning aspects have been addressed.

The project sponsor may use the same techniques described above for the IT Project Leader.

Stage Content:

Project Planning involves many activities that will support the successful resourcing and workplan development for the project. These activities have been grouped into four categories:

- Management Activities Those activities most tightly linked to the management of the process and control of the scope and deliverables of the project.
- Infrastructure Activities Those activities that support the quality and content aspects of the project and ensure that the appropriate review and consideration is given to deliverables, process, and progress.
- Improvement Activities Those activities that not only contribute to ongoing improvement with the immediate project environment, but that will identify improvements to process, policy, procedure and resourcing for ongoing benefit within the organization.
- Checklists for Success

Project Planning - Acceptance

A project cannot be considered done until it meets a set of acceptance criteria agreed upon by both project management and the client/customer.

Why do projects need to define and plan for Acceptance?

- don't know when you are done without a definition of what constitutes completion!

Acceptance Procedures

Refer to your Department's Project Acceptance Procedure for an explanation of the requirements for Acceptance Planning. Your project's Acceptance Plan should adhere to the details outlined in the Acceptance Procedure.

Your Department may also have an Acceptance Testing Procedure which outlines the process for testing the acceptance criteria to prove that the project is completed. Your project's Acceptance Test Plan should adhere to the details outlined in the Acceptance Testing Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Acceptance Planning - How to do it?

A project's Acceptance Plan is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution. Project Acceptance/Signoff occurs during Project Close Out.

A project's Acceptance Test Plan is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution.

Acceptance Testing Tools

During Project Planning, any testing tool(s) should be identified.

Project Planning Stage - Management Activities

The project planning management activities include those activities most tightly linked to the management of the process and control of the scope and deliverables of the project.

These activities allow the project manager and other project stakeholders to address potential issues, risks, and barriers to project success and to prepare in advance, methods and processes for dealing with such events if they arise during the project life cycle.

These activities govern the overall process of the project execution by laying a foundation upon which the project deliverables will be completed, and the project objectives achieved.

Content:

- Acceptance
- Business Continuity Management
- Change Management
- Communication Management
- Contract Management
- Estimating
- Gating
- Issue/Problem Management
- Metrics
- Operations and Maintenance Handover
- Project Administration
- Risk Management

Project Planning - Business Continuity Assessment

Business Continuity refers to the ability of the organization to maintain operations without over reliance on technology. As reliance on automation increases, it is often difficult for organizations to operate if systems interruptions occur. The Business Continuity Procedure outlines considerations related to the impact of interruptions in service from the proposed system/product on the operations of the organization and the organization's ability to meet its contractual and regulatory obligations and legal requirements.

Business Continuity includes:

- identification of the critical business functions supported by the proposed system/product
- identification of the potential exposures to the business if the proposed system/product were non-operational.

Why do projects need Business Continuity Assessment?

As mentioned above, an organization's reliance on automated technologies to perform daily operations and to access critical information can be dramatically impacted by loss of service or short- or long-term interruptions in service. Business Continuity allows the organization to evaluate the risk of such impacts and to plan for and manage against them. It ensures that appropriate procedures are developed to allow for continued business operations if a service outage occurs.

Business Continuity Assessment

Refer to your Department's Business Continuity Procedure and consider impacts that the proposed project may have within the Department as well as to related or supporting Departments.

Business Continuity Roles/Responsibilities

See General Roles/Responsibilities

Business Continuity Assessment – How to do it?

Your Department's methodology should outline the appropriate method for conducting a Business Continuity Assessment within the Project Planning stage. Business Continuity Management occurs during the Project Execution Stage.

If your Department's approach does not provide this level of activity, a Business Continuity Plan Outline is provided.

Project Planning - Change Management

Change Management is a disciplined approach to planning, coordinating, and reporting changes that have the potential to negatively impact the project plan and/or the project deliverables. The objective of the change management process is to ensure that changes are implemented with minimum or acceptable levels of risk and that the project is not jeopardized by planned change.

Areas where change must be managed include :

- Hardware (Development or Implementation)
- Software (Project Requirements, Architecture, Design, ...)
- Project Resources (Team members, Schedule, Budget, Tools, ...)
- Environment (office space, system testbeds, ...)
- Procedures (project life cycle, methodology, QA,....)

Why do projects need Change Management?

- to plan, monitor and control change
- to reduce risks associated with change
- to reduce the costs associated with change

Change Management Procedure

Refer to your Department's Change Management Procedure for a detailed explanation of how to implement a change management approach. Your project's Change Management Plan should adhere to the details outlined in the Change Management Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Change Management Planning - How to do it?

A project's Change Management Plan document is developed at a high level during the Project Planning Stage. The Plan may be further refined during Project Execution.

Note that Change Management should be implemented in Project Planning as well as Project Execution - as soon as change starts to occur it should be managed. The discussion in the Project Execution page for Change Management applies to managing change in planning as well.

Change Management Tools

During Project Planning,chagement tool(s) should be identified.

Project Planning - Communication Management

Communication Management refers to planning how team members, users and stakeholders are kept in touch with a project's progress and how they share information necessary to perform their project tasks.

It may involve such things as:

- planning regular project meetings
- selecting a particular file format for exchanging documents

Why do projects need to consider Communication Management?

- the larger the number of people involved in the project, the more communication paths there are and the more project overhead is consumed in simply sharing information and keeping people up to date. Inefficiencies in communication, and especially the lack of communication, can severely affect a project's schedule and its chances for success.
- if the project team is spread out over different geographical areas and/or timezones, communication management is critical since face-to-face meetings (both formal and informal ones) are far less frequent than if the entire team is collocated.
- communication tools must be easy to use and effective or they will be abandoned. Select and test them early, incorporate them into your communication management plan, and you won't spend large amounts of precious time during the project trying to get communication working.

Communication Management Procedure

Refer to your Department's Communication Management Procedure for a detailed explanation of how to implement a communication management approach. Your project's Communication Management Plan should adhere to the details outlined in the Communication Management Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Communication Management Planning - How to do it?

A Communication Management Plan is developed during the Project Planning Stage and then further refined and implemented during Project Execution.

Communication Management Tools

During Project Planning, communication tool(s) should be identified. *Communication tools* may include such things as email, products like Lotus Notes, video conferencing, online exchange of information using web pages (intranet- or internet-enabled), etc.

Project Planning - Contract Management

Contract Management defines the processes and procedures for handling proposals and contracts with third-party suppliers/contractors.

The project may enter into third-party contracts for goods and/or services that include:

- Hardware (e.g., development and/or installation hardware)
- Software (e.g., COTS, outsourcing some or all of the development)
- Services (e.g., management or development contractors/consultants)

Why do projects need Contract Management?

- to provide effective management of third-party contractors
- to ensure contractor commitments are met

Contract Management Procedures

Refer to your Department's Third-Party Contract Procedure for a detailed explanation of how to implement contract management. Your project's Contract Management Plan should adhere to the details outlined in the Contract Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Contract Management Planning - How to do it?

A Contract Management Plan document is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution. The Plan addresses such things as issuing and evaluating RFPs, third-party selection & monitoring, and review on completion.

Contract Management Tools

During Project Planning, contract management tool(s) should be identified.

Project Planning - Estimating

The process of creating an accurate software development project schedule and budget involves four steps:

- estimate the size of the software development "product"
- estimate the effort (person-months), including a work breakdown structure (WBS)
- estimate the schedule (calendar-months)
- estimate the cost (budgeting)

Estimates made in the early stages of a project have a significant degree of imprecision. Estimates can, and should, be refined over the course of a project as more detailed information is obtained.

Why do projects need to consider Estimating?

- you can't tell exactly what the size, effort, schedule, and cost of a project are until you are done; however, you need to work with an accurate prediction of these things in order to effectively plan the project and obtain the necessary resources (including people and $$).
- estimates can be created carefully using accepted methods that give useful, justifiable values or they can be "seat-of-the-pants" guesses; the former is much more likely to result in a successful project.
- you need to plan for time to create the initial estimates and for time to revisit the estimates throughout the project lifecycle.

Estimating Procedure

Refer to your Department's Estimation Procedure for a common approach to the generation, reporting, storage, and retrieval of project estimates.

There are a number of different methods for estimating project size (e.g., Lines of Code(LOC), Function Point Analysis (FPA), etc.) and for estimating project effort/schedule/cost (e.g., by analogy, or using methods like SLIM, COCOMO, etc). Estimates should be obtained using more than one method and, where possible, using more than one person/group.

There are a number of different ways to represent estimation results. For example, a Gantt Chart of project activities, resources, and assigned responsibilities can be used to communicate the schedule. Your Department's Estimation Procedure and a Project Plan Outline document should discuss ways to represent project estimation results.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Project Estimating - How to do it?

Project estimates are initially developed during the Project Planning Stage (and the results become part of the Project Plan document) and then further refined throughout the Project Execution Stage. Project estimates should be reviewed against actuals during the Project Review activity in the Close Out & Wrap-up Stage.

Estimating Tools

During Project Planning, estimating tool(s) should be identified and used.

Project Planning - Overview of Estimating Approaches

This page introduces a number of approaches (but does not provide coverage of all possible approaches) to estimating project size, effort, schedule, and cost. Hyperlinks to more detailed references are provided where possible.

There are a number of text books available which go into project estimating in more detail.

Estimating Project Size

Lines of Code (LOC)

> The most common size measure but not the most reliable for estimating project scope, especially in the early stages of a project.

Function Point Analysis (FPA)

> Function Points were initially proposed by Albrecht in 1979. Function points are a synthetic measure of size, based generally on the number and complexity of product inputs, outputs, database I/O, internal files and external files. Function points are easier to determine from a requirements specification than lines of code are, and are considered to be a more accurate measure of project size. Click here to access the International Function Point Users Group (IFPUG) web site for more information.

Estimating Project Effort/Schedule/Cost

By analogy

> Comparing the target product to completed products (ones the estimator has had direct and detailed experience working on) and noting the similarities and differences.

Algorithmic models:

SLIM [Putnam, 1978]

Mathematical model that assumes that resource consumption during software development obeys a specific distribution (Rayleigh curves) and thus effort, schedule, and cost can be predicted.

COCOMO [Boehm, 1981]

Hybrid model incorporating mathematical equations and statistical modeling where large numbers of projects are studied and empirical rules determined from the data.

Project Planning - Gating

Gates are significant completion events, or quality milestones, placed a key points in the project lifecycle. Gates assess either the quality of the products produced so far or the adequacy and completeness of the process to date, and a gate can only be "passed" if the products or process meet a predefined performance standard.

If, at a gate review, the gate's criteria have not been met it is possible that the project may be terminated or a significant change in project direction may take place to address the lack of performance. The project should not continue "as is" unless each gate is "passed".

Gates may take the form of such things as technical reviews, completion of documents or demonstrations or test cases, or project audits. Gates are identified in a project's plan/schedule, and a gate review meeting is required to formally "pass" each gate.

Why do projects need to consider Gates?

- to identify key "go, no go" points in a project where either a project status review and/or a project quality review is performed and passed. A project should not continue until it passes each gate, since gates are checkpoints that ensure the quality and integrity of products before they are used in the next phase(s) of the project.

Gating Procedure

Refer to your Department's Gating Procedure for a detailed description of the required project gates and the criteria that must be met to pass each gate.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Gate Planning - How to do it?

Gates (as defined in the Gating Procedure) are added to the Project Plan during the Project Planning Stage. Gates are then further refined and implemented during Project Execution.

Project Planning - Issue/Problem Management

The words issue, problem and risk mean different things to different people. All individuals do not necessarily perceive issues and problems in the same way and some consider them to simply be another form of risk. For the purposes of this discussion, an issue or problem is some situation or failure that has a negative impact on the ability of the project team to successfully complete the project as planned/specified. This definition excludes many kinds of issues and problems that management might face - unless issues/problems lead to a significant project failure they are excluded from the discussion of issue/problem management.

Within the Handbook, we differentiate Issue/Problem Management from Risk Management. We treat Risk Management as a proactive means of planning for and coping with potential impacts from identified risks. Within the project life cycle, if an identified risk occurs, the contingency plan developed for that risk can be exercised in order to mitigate or eliminate the impact of the risk. In fact, developing a thorough yet flexible Issue/Problem Management Plan for your project can be considered one form of risk management.

More specifically, we consider issues and problems to be those things that occur within the project life cycle that have not been planned for or anticipated. "Issues" can be characterized as a "potential problem" whereas "problems" are events or situations that have occurred and now provide potential for negative impact on the project. For example, if a team member is sick for one day, this is will not likely create significant problems within the project environment. However, if it is identified that there is a potential that the resource may remain sick for a period of time, this would be struck as a project "issue". If the resource actually does remain sick for a period of time, then this occurrence could be considered a "problem".

Issue/Problem Management is a disciplined approach for detecting, reporting, and resolving or correcting issues/problems impacting the successful completion of the project plan and/or the project deliverables.

Areas where issues/problems must be managed include :

- Hardware (Development or Implementation)
- Software (Project Requirements, Architecture, Design, ...)
- Project Resources (Team members, Schedule, Budget, Tools, ...)
- Environment (office space, system testbeds, ...)
- Procedures (project life cycle, methodology, QA,....)

Why do projects need Issue/Problem Management?

- to detect, control, monitor, and resolve/correct significant issues/problems
- to reduce significant issues and problems to acceptable levels

- to reduce the cost of significant issues and problems
- to complete the project on time, on budget, with high quality deliverables

Issue/Problem Management Procedure

Refer to your Department's Issue/Problem Management Procedure for a detailed explanation of how to implement a issue/problem management approach. Your project's Issue/Problem Management Plan should adhere to the details outlined in the Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Issue/Problem Management Planning - How to do it?

A project's Issue/Problem Management Plan document is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution.

Issue/Problem Management Tools

During Project Planning, issue/problem management tool(s) should be identified.

Project Planning - Metrics

Metrics are measurements, collections of data about project activities, which are used to help estimate projects, measure project performance, and to reduce project risks. Metrics can assist the Project Manager by making progress (or lack of it) and quality (or lack of it) obvious.

A project can measure, capture, monitor and analyze any number of different metrics, including:

- Management (schedule, earned value, productivity, risks, ...)
- Quality (volatility in #requirements, architecture changes, code defects, ...)
- Problems (#problems, open/closure rates, ...)
- Testing (test coverage, #test cases, ...)
- Software Reliability (Defect density, failure rate,..)

A project should capture only those metrics that can provide tangible benefits to the project and to process improvement since there are significant costs (to productivity & budget) involved in collecting, analyzing, and reporting such measures.

Why do projects need Metrics?

- what you don't measure you can't monitor and control!
- metrics can give you an indication of the project's current "health"
- set the groundwork for long-term process improvement

Metrics Procedure

Refer to your Department's Metrics Guideline for a detailed description of what metrics to capture. Your project's Metrics Plan should adhere to the details outlined in the Metrics Guideline.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Metrics Planning - How to do it?

A Project Metrics Plan is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution.

Metrics Tools

During Project Planning, metrics tool(s) should be identified.

Project Planning - Operations and Maintenance Handover

The Acceptance Procedure defines the process for effective handover between the solution provider and the business area. Likewise, it is critical that an effective process is developed to ensure the smooth and complete transfer of the developed solution from the project development team, to the operations and support department within the organization. The Operations and Maintenance Handover Procedure provides the agreed upon approach to completing the solution handover.

Why do projects need to define and plan for Handover?

The Operations and Maintenance Handover ensures that the solution moves smoothly from the development environment to an environment where it can effectively be supported and maintained for the business area user. Without an effective handover, two key problems may arise:

- the project development team attempts to provide ongoing support and assistance (against other priorities and goals); or,
- no ownership of the solution exists since the project development team assumes they have completed their requirements and yet the operations and maintenance team have not been provided adequate information to take on the responsibility of support.

The Operations and Maintenance Handover provides:

- a description of how the solution will be moved from the project development environment to the support and maintenance environment;
- identifies the activities that are necessary to adequately prepare the support and maintenance resources to take responsibility and ownership for ongoing operation of the solution; and,
- outlines responsibilities for handover both during the solution development period and after project completion.

Handoff Procedures

Refer to your Department's Operations and Maintenance Procedure for a detailed explanation of how to implement the handover. Your project's Operations and Maintenance Handover Plan should adhere to the details outlined in the Procedure.

Project Planning Roles/Responsibilities

See also General Roles/Responsibilities.

IT Project Leader

- The IT Project leader is responsible for ensuring that the appropriate resources with the Operations and Maintenance department are involved in the project planning so that they clearly understand their responsibilities to ensure effective handover of the solution once the project is complete.

Handover Planning - How to do it?

Your department's methodology may outline the requirements for the Operations and Maintenance Handover. If your department does not have a defined procedure, refer to the ISO/IEC 12207.

In the Project Execution Stage the Project Manager ensures that the requirements for the Operations and Maintenance Handover are fulfilled.

Project Planning - Project Administration

Project Administration encompasses project planning, monitoring, control and reporting.

Why do projects need to consider Project Administration?

- To ensure that all projects are planned and executed in a disciplined manner so that they are delivered on time, within budget and achieve their quality targets.

Project Administration Procedure

Refer to your Department's Project Management Procedure for a detailed explanation of how to implement the management process. Your project's Project Management Plan should adhere to the details outlined in the Project Management Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Project Administration Planning - How to do it?

A Project Management Plan is developed during the Project Planning Stage, and then implemented (and modified as needed) during Project Execution.

Project Administration Tools

During Project Planning, project adminstration tool(s) should be identified.

Project Planning - Risk Management

Risk Management involves a continuous process of identifying, analyzing, prioritizing, monitoring and controlling project risks. TBS has identified the Software Engineering Institute's (SEI's) Continuous Risk Management Approach as a sound foundation for risk management activities in IT-related projects within the government. One of the methods identified within this approach is "Taxonomy-Based Risk Identification". TBS has adopted this method as the preferred and appropriate approach for government IT projects.

For more information on risk management see the following document from the SEI:

- "Taxonomy-Based Risk Identification", Technical Report CMU/SEI-93-TR-6, June 1993.

Why do projects need to consider Risk Management?

- to help ensure a successful project by identifying and planning for possible undesirable circumstances. Being proactive and being prepared can make all the difference!

Risk Management Procedure

Refer to your Department's Risk Management Procedure for a detailed explanation of how to implement a risk management process. Your project's Risk Management Plan should adhere to the details outlined in the Risk Management Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Risk Management Planning - How to do it?

A Risk Management Plan is initially developed during the Project Planning Stage, then refined and implemented during Project Execution.

Risk Management Tools

During Project Planning, risk management tool(s) should be identified.

Project Planning Stage - Infrastructure Activities

Within the project planning stage, there are a number of supporting, or infrastructure activities that will aid in the completion of project deliverables. These activities support the quality and content aspects of the project and ensure that the appropriate review and consideration is given to deliverables, process, and progress.

Whereas the Planning Management Activities define the overall project management framework (the process), the Planning Supporting Activities influence the integrity, quality, and completeness of the deliverables (content).

Content:

- Configuration Management
- Documentation
- Internal Audit
- Joint Review
- Quality Management
- Tool Usage
- Validation
- Verification

Project Planning - Configuration Management

Configuration Management is a set of methods and tools for systematically managing system configurations throughout the development and maintenance life cycles of projects.

A "configuration" is a set of configuration items (intermediate & end-product) that define the system, or a part of the system, within the system's life cycle. An item is any software component, release, tool, documentation or hardware unit required for the purpose of creating or supporting customer deliverables.

Configuration items can include:

Documentation	• Contract, Statement of Work, Plans, Processes, Standards, ...
	• Development Specifications (Requirements, Design, Test,...)
	• Manuals (User, Operator, Installation, Maintenance, Training,...)
	• Reports (Audits, Tests, Reviews, Problems, Changes, ...)
Software	• Source, Object, Executable, Data, Scripts, COTS, ...
Hardware	• Processors, Peripherals, Interfaces, ...

Why do projects need Configuration Management?

- To manage changes to life cycle products (versioning)
- To provide concurrent access during development
- To provide discipline and control to avoid chaos and confusion
- To support traceability and customer signoff
- To maintain consistency and integrity
- To ensure system configurations (baselines, releases) can be reconstructed

Configuration Management Procedure

Refer to your Department's Configuration Management Procedure for a detailed explanation of how to implement a configuration management approach. Your project's Configuration Management Plan should adhere to the details outlined in the CM Procedure.

Project Planning Roles/Responsibilities

See also General Roles/Responsibilities. Any specific CM Roles/Responsibilities are described below.

Project Manager

- The Project Manager is responsible for appointing a Configuration Librarian or delegating that authority to the Project Team Leader.

CM Planning - How to do it?

A project's Configuration Management Plan document is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution.

CM Tools

During Project Planning, CM tool(s) should be identified.

Project Planning - Documentation

Projects need to have or define a Documentation Process which contains the set of activities which plan, design, develop, produce, edit, distribute, and maintain project documents. Each project should have a Documentation Plan which identifies all the documents to be produced during the project lifecycle.

Why do projects need to consider a Documentation Process/Plan?

- documents are project deliverables (either internal or external deliverables), and as such need to be identified and the effort needed to produce and review them needs to be planned for/scheduled
- projects of different sizes/types often require different sets of documents; a Documentation Process will identify the required documents for each particular type of project.
- documents should be standardized across projects so that each project does not have to "reinvent the wheel" when producing documentation; a Documentation Process will identify documentation standards for format & content, review & approval.
- supports and simplifies operations and maintenance and reduces ongoing costs.

Documentation Procedure

Refer to your Department's Project Documentation Procedure for a detailed explanation of the documentation process. Your project's Documentation Plan should adhere to the details outlined in the Project Documentation Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Documentation Planning - How to do it?

A Documentation Plan is developed during the Project Planning Stage. This plan identifies the documents to be produced during the project's lifecycle, and describes the procedures & responsibilities for inputs, development, review, modification, approval, production, storage, distribution, maintenance, and configuration management.

The documents listed in the Documentation Plan should appear in the Project Schedule, where activities to produce them and milestones indicating completion of each version of a document should be planned.

The Documentation Plan is implemented during Planning, Execution, and Close-out Stages as the documents described in the plan are produced in all three project stages.

Documentation Tools

During Project Planning, documentation tool(s) should be identified. *Documentation tools* may include such things as word processing software, document generating software, document format conversion tools (for example, to convert from MS-Word to HTML for electronic publishing) and configuration management software for storing/retrieving different versions of documents.

Project Planning - Internal Audit

Internal audit(s) of a project, performed by the Internal Audit or Quality Assurance group within each Department, are generally scheduled (rather than being unplanned "surprises") at one or more points during the project lifecycle.

Why do projects need to consider Internal Audit?

- to plan for the project resources (generally team members' time) that will be needed during the audit(s)
- to plan for a minimum of disruption to project schedule during the audit(s)

Internal Audit Procedure

Refer to your Department's Project Internal Audit Procedure for an explanation of the requirements for internal audit(s). Your project's Internal Audit Schedule should adhere to the details outlined in the Internal Audit Procedure.

Project Planning Roles/Responsibilities

See also General Roles/Responsibilities. Any specific Internal Audit Roles/Responsibilities are described below.

Quality Assurance

- Where an Internal Audit function does not exist within the Department, the Quality Assurance role is responsible for the development of the Internal Audit Schedule for the project.

Internal Audit Planning - How to do it?

An Internal Audit Schedule is developed by the Department's Internal Audit or Quality Assurance group and reviewed by project management during the Project Planning Stage. Audits take place during the Execution Stage.

For more information on conducting internal audits see the Treasury Board Secretariat's Audit Guides.

Project Planning - Joint Review

Joint reviews are performed at both the project level (project management reviews) and at the technical level (development reviews) and are held throughout the life of the project. This process may be employed by any two parties, where one party reviews another party.

Joint reviews may be held for such things as:

- project management "products" (project plans, schedules, etc.) or status (gate reviews, etc)
- technical "products" (specifications, code, test cases, etc.) or status
- process "products" (procedures, standards, plans, etc.) or status
- contract "products" (software development, COTS, etc.) or status

Click here for a list of types of reviews taken from the document titled "Creating and Using a Business Case for IT Projects".

Why do projects need to consider Joint Reviews?

- "what isn't seen to be done isn't done" - visibility of accomplishments is vital, and joint reviews allow all interested parties to acknowledge and approve milestones/accomplishments.
- both parties must agree on the outcome (e.g., approval, disapproval, contingent approval) of the review and any action items as a result of the review; the best way to reach agreement is to get both parties together in an formalized, planned manner.
- planning Joint Reviews during the project planning stage allows project management to build into the schedule the resources to perform the reviews and to complete action items after the reviews.

Joint Review Procedure

Refer to your Department's Joint Review Procedure for a detailed explanation of how to implement a joint review approach. Your project's Joint Review Plan should adhere to the details outlined in the Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Joint Review Planning - How to do it?

A project's Joint Review Plan is developed during the Project Planning Stage. Joint reviews are held throughout the life of a project.

Project Planning - Types of Reviews

There are many types of reviews that can be used to assist the Project Manager and the project team in communicating, reporting progress, and dealing with project issues, problems and opportunities.

In the document *'Creating and Using a Business Case for Information Technology Projects'*, Chapter 9 covers the topic of ongoing reviews:

> "Reviews help you verify that the IT investment decision remains valid, and that all costs and benefits resulting from that decision are understood, controlled, and realized. The investment analysis contained in the business case defines the goals of the implementation project and serves as a standard against which to measure the project's prospects for success at review time."

The following types of reviews are identified within this Chapter:

Independent Reviews. These are conducted by an independent party at major checkpoints to identify environmental changes, overrun of time and cost targets, or other problems. Funding should also be set aside for unscheduled independent reviews to be undertaken whenever there are significant changes in the project environment or serious concerns about the project.

Internal Peer Reviews. Departments engaged in several projects simultaneously have several project managers and other managers in the systems development, maintenance, and operations groups. This body of expertise can be drawn upon to conduct periodic peer reviews of projects. These semi-formal reviews allow the project manager to present performance and progress data, to discuss upcoming challenges and to identify any horizontal issues. The object of the peer review is for the group to verify that the project is still on course and to provide expert advice, counsel, and assistance to the project manager. In this way, the combined skills and experience of all these managers is applied to the project.

External Peer Reviews. Departments may also draw upon similar people in other departments or organizations to provide a different perspective and to bring a wide range of expertise to bear on project strategies, plans and issues.

Project Team Sanity Checks. Another source of early warning for project problems is the project team members. These people are the most intimately aware of difficulties or planned activities that may pose particular challenge. The project manager should plan regular sessions where team members can review the continued relevance of the project, project performance, and concerns about actual or potential problems in a non-incriminating way.

Oversight Reviews. These reviews, under a senior steering committee should be planned to take place at each checkpoint to reconfirm that the project is aligned with departmental priorities and directions and to advise senior management on project progress.

Investment Reviews. The departmental auditor can also review the performance of projects and, upon completion, the performance of the investment. At an investment review, the auditor reviews and verifies the impact of the investment to ascertain that the investment was justified. This activity is more than a traditional compliance audit; it is a review of process and of results.

Project Planning - Quality Management

Quality Management in software development projects is generally influenced by two documents:

- the Department's Quality Manual, which sets the direction, tone, and intent of the department with respect to quality
- the Department's Software Assurance Procedure, which ensures the quality of processes and work products with respect to software development.

Why do projects need to consider Quality?

- to ensure the product(s) delivered are correct (i.e., function correctly, satisfy specifications)
- to ensure excellence in the creation and application of project management and development processes so as to ensure the quality of the product(s)

Quality Manual and Software Assurance Procedure

Refer to your Department's Quality Manual for a detailed statement of the policies, objectives, and operating principles of the department. The Quality Manual should contain the departmental quality policy statement, quality objectives, organizational structure, and overview of the quality system.

Refer to your Department's Software Assurance Procedure for a detailed explanation of how to implement a software quality approach. Your project's Software Quality Plan should adhere to the details outlined in the Software Assurance Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Quality Planning - How to do it?

A project's Software Quality Plan is developed during the Project Planning Stage. The Plan is implemented during Project Execution.

Project Planning - Tool Usage

The definition of just what to consider a *software development project tool* when planning tool usage is quite broad. A tool can be anything from a word processor, file editor, or compiler to an IDE (Integrated Development Environment), document or code generator, configuration management system, requirements management & tracking system, or a fully-integrated, lifecycle-spanning, methodology-oriented database of requirements, design, code and testing information.

During Project Planning consideration must be given to the set of tools the project will use. Generally, some tools may be selected because they have been used successfully on previous projects and are already available (although they may need upgrading - don't forget to assess this for any existing tool), and some new tool(s) may be acquired for the project either because this project is creating something different (e.g., GUI, client/server architecture, etc.) or using something new (e.g., a new process/methodology, a new programming language, etc.) or because experience from previous projects has pointed out area(s) where tool(s) might be useful.

When planning tool usage, it pays to remember the following:

- tool use should be treated as a long-term, strategic concern rather than a short-term fix. Throwing a tool at a project, rather than carefully integrating an appropriate tool into a project, very rarely fixes problem(s), but it often does create new ones!
- it takes significant time and money to research, acquire and deploy tools effectively. The purchase price of the tool is by no means the ultimate cost of the tool.
- brand new tools (both new to team members or newly on the market) introduce unpredictability in both project schedule and quality
- lack of training is a significant reason why tools are used less than they could be or are misused. Don't forget to plan for training too.
- time-sensitive projects (those that are either short-term, or have little/no contingency) are usually not the right projects in which to introduce a new tool

Note that some organizations form a tools group independent of any project to research, evaluate, recommend, and possibly support tools so that no particular project has to absorb the overhead of all these activities and all projects can benefit from the knowledge & experience of others. Even if a tools group exists, each project must still go through the process of selecting the tools to be used on the project and deciding how they will be used.

Why do projects need to consider Tools?

- tools can increase your project's productivity and quality, when they are acquired, integrated and used appropriately
- must include the necessary time and money into the project's schedule/plan & budget

Tool Usage Procedure

Refer to your Department's Project Management Procedure for a discussion of project tool considerations. Your Project Management Plan should take tool selection, acquisition, testing, installation, and training issues into account.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Tool Usage Planning - How to do it?

A Project Management Plan is developed during the Project Planning Stage and it should include consideration of project tools. Tools are used throughout the project life cycle, including Project Execution.

Project Planning - Validation

"The Validation Process is a process for determining whether the requirements and the final, as-built system or software product fulfills its specific intended use. Validation may be conducted in earlier stages. This process may be conducted as part of Software Acceptance Support." (Reference: ISO/IEC 12207 : 1995 p. 36).

During Project Planning, a determination needs to be made as to whether or not the project warrants a validation effort (see "why" section below for reasons) separate from the usual Acceptance Process between project and client/customer, and whether or not an independent group (e.g., an Independent Validation Test (IVT) team) must execute the validation.

A project's Testing/Validation path may look like the following:

Code --> Unit Test --> Integration Test --> IVT --> Acceptance Testing

where IVT (an internal, but independent validation) must pass before acceptance testing with the client/customer can be scheduled.

Why do projects need to consider Independent Validation Testing?

- Some projects have a high level of criticality such that undetected errors in deliverables could result in death or personal injury, mission failure or significant financial loss. An independent validation process can help detect any significant errors before delivery.
- a thorough, yet independent, check of the deliverable(s) prior to Acceptance Testing in an attempt to ensure Acceptance Testing is successful when it is performed.
- generally, IVT performs more rigorous testing than is done during Acceptance Testing because Acceptance Testing focuses on what the client/customer considers important and IVT focuses on more of the details including stress and boundary tests.

Independent Validation Test Procedure

Refer to your Department's Independent Validation Test Procedure for a detailed explanation of how to implement an IVT approach. Your project's Independent Validation Test Plan should adhere to the details outlined in the Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Independent Validation Test Planning - How to do it?

A project's Independent Validation Test Plan is developed at a high level during the Project Planning Stage, and then further refined and implemented during Project Execution.

Project Planning - Verification

Verification is the process of examining the result of a given activity to determine if the result fulfills the requirement(s) for that activity.

During Project Planning, a determination needs to be made as to whether or not any project activities/products warrant a verification effort (see "why" section below for reasons) more planned & documented than the usual review & signoff process between project management and those individuals that performed the activity under review, and whether or not an independent group must execute the verification.

Examples of some project activities/products that may require verification include:

- contracts
- project lifecycle definition, methodology, procedures, plans
- requirements, design, code, integration
- documentation

Why do projects need to consider Verification?

- Some projects have a high level of criticality such that undetected errors in an activity could result in death or personal injury, mission failure or significant financial loss. A formal verification process can help detect any significant errors before they can cause trouble.
- Some projects use "bleeding edge" technology or methodology, and as such have a much higher risk of failure. A formal verification process can help mitigate the risks.
- For cost and performance effectiveness, verification steps should be integrated into the project schedule/plan as early as possible

Verification Procedure

Refer to your Department's Verification Procedure for a detailed explanation of how to implement a verification process. Your project's Verification Plan should adhere to the details outlined in the Verification Procedure.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Verification Planning - How to do it?

A Verification Plan is developed during the Project Planning Stage and implemented during Project Execution. The plan should identify all the life cycle activities and products subject to verification and the required verification tasks for each activity/product.

Project Planning Stage - Procecc & Performance Improvement Activities

Project Planning Improvement Activities not only contribute to ongoing improvement with the immediate project environment, but that will identify improvements to process, policy, procedure and resourcing for ongoing benefit within the organization.

The improvement activities encourage an environment of continuous improvement, not only within the life cycle of the project, but across the organization. Lessons learned, project, organization, and industry best practices are identified, evaluated, and adopted, as appropriate through these activities.

Organizational procedures and standards that support the project life cycle should be tailored for each project to ensure that an appropriate level of discipline and rigor is applied.

The process and performance improvement activities identified within the scope of this handbook include the following:

Content:

- ISO/IEC 12207 Tailoring
- SDLC/Methodology
- Training

Project Planning - ISO/IEC 12207 Tailoring

The Treasury Board Secretariat has endorsed the ISO/IEC 12207 International Standard, "Information Technology - Software Life Cycle Processes", as the underlying framework within the government.

Although this standard specifically applies to the software life cycle processes, valuable recommendations, policies, and procedures are outlined within the document that can be adopted to non-software projects.

The purpose of the standard is stated as follows:

"This International Standard establishes a common framework for software life cycle processes, with well-defined terminology, that can be referenced by the software industry. It contains processes, activities, and tasks that are to be applied during the acquisition of a system that contains software, a stand-alone software product, and software service and during the supply, development, operation and maintenance of software products. Software includes the software portion of firmware."

"This International Standard also provides a process that can be employed for defining, controlling, and improving software life cycle processes."

(Taken from the Scope and Purpose - section 1.1. - of the ISO/IEC 12207 International Standard.)

Why do projects need Tailoring of the ISO/IEC 12207 Standard?

"No two projects are the same. Variations in organizational policies and procedures, acquisition methods and strategies, project size and complexity, system requirements and development methods, among other things, influence how a system is acquired, developed, operated, or maintained. This International Standard is written for a general project to accommodate such variations as much as possible. Therefore, in the interest of cost reduction and quality improvement, this International Standard should be tailored for an individual project. All parties involved in the project should be involved in the tailoring."

(Taken from ISO/IEC 12207 International Standard, Tailoring.)

12207 Tailoring Procedure

Annex B of the ISO/IEC 12207 International Standard, "Information Technology - Software Life Cycle Processes", outlines the general procedure for tailoring the standard.

It should be noted, that there are two levels of tailoring required. First, your department will want to tailor the standard for its general use. Then, on a project-by-project basis, you will want to further refine the application of the standard to address specific project variables and considerations.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

12207 Tailoring - How to do it?

The Tailoring process is a process for performing basic tailoring of the ISO/IEC International Standard for a software project. The details about this process can be found in Annex A of the ISO/IEC 12207:1995 (E) International Standard, Information Technology - Software life cycle processes.

Implementation of the tailoring takes place during the Project Execution Stage.

ISO/IEC 12207 Tailoring - Summary of the Project Tailoring Process

This section of the Handbook summarizes the project tailoring process and is taken from the ISO/IEC 12207: 1995 (E) International Standard, "Information technology - Software life cycle processes".

The project tailoring process consists of four activities:

1. Identifying the project environment;
2. Soliciting inputs;
3. Selecting processes, activities, and tasks;
4. Documenting tailoring decisions and rationale.

Identifying the Project Environment

"Characteristics that are going to influence the tailoring shall be identified. Some of the characteristics may be:

- life cycle model;
- current system life cycle activity;
- system and software requirements;
- organizational policies, procedures and strategies;
- size, criticality and types of the system, software product or service; and,
- number of personnel and parties involved."

Soliciting Inputs

"Inputs from the organizations that are to be affected by the tailoring decisions shall be solicited. Users, support personnel, contracting officers, potential bidders should be involved in tailoring."

Selecting Processes, Activities, and Tasks

"This activity consists of the following tasks:

> The processes, activities, and tasks that are to be performed shall be decided. These include the documentation to be developed and who are to be responsible for them. For this purpose, this International Standard should be evaluated against relevant data gathered in clauses A.1 and A.2 [Identifying the project environment and Soliciting inputs, respectively].

The processes, activities, and tasks that were decided upon in A.3.1 (the above step) but not provided in this International Standard shall be specified in the contract itself. Organizational life cycle processes (clause 7) should be evaluated to determine whether they could provide for these processes, activities, and tasks.

In this International Standard, requirements are indicated by tasks that contain "shall" or "will". These tasks should be carefully considered for whether they should be kept or deleted for a given project or a given business sector. Factors to be considered include but are not limited to: risk, cost, schedule, performance, size, criticality, and human interface."

Documenting Tailoring Decisions and Rationale

"All tailoring decisions shall be documented together with the rationale for the decisions."

Project Planning - SDLC/Methodology

The life cycle approach to software development (SDLC) divides a complex task into a number of phases so that the development activities can be more easily understood and controlled. The specific approach (e.g., number of phases, waterfall lifecycle vs. incremental lifecycle, etc.) selected depends on the size of the project and the management system of the department.

Methodology refers to the set of management processes and procedures applied across the SDLC. Different departments may have similar project life cycle definitions but apply different management methodologies (e.g., DMR's Productivity Plus, Arthur Andersen's Method 1, and Ernst & Young's Navigator).

Why do projects need a life cycle definition and management methodology?

- to achieve consistent, on time, on budget, high quality results in project management and software development

SDLC/Methodology Procedures

Refer to your Department's Process Definition and Improvement Procedure and management methodology documentation for a detailed explanation of how to implement the life cycle & methodology.

Project Planning Roles/Responsibilities

See General Roles/Responsibilities.

Life Cycle Planning - How to do it?

A Project Life Cycle document is developed during the Project Planning Stage; the life cycle is implemented during Project Execution.

Project Planning - Training

Training may be necessary for some or all project team members in order to equip them with the knowledge and skills required to perform their jobs.

Why do projects need to consider Training?

- to acquire the management and/or development knowledge & skills needed to successfully complete the project
- to ensure team members understand, can achieve, and can maintain quality standards
- to ensure training is carried out in the most cost-effective and timely manner

Training Procedure

Refer to your Department's Training Procedure for a detailed explanation of how to implement the training necessary for your project team. Your project's Training Plan should adhere to the details outlined in the Training Procedure.

Project Planning Roles/Responsibilities

See also General Roles/Responsibilities. Any specific Training Roles/Responsibilities are described below.

Development Team Member(s)

- identify training needs to their immediate project supervisor

Training Planning - How to do it?

A project's Training Plan is developed during the Project Planning Stage. Actual training may take place at any time during the project life cycle (see also Project Execution), as long it is received before team members require the knowledge/skills the training is to provide.

Training Tools

During Project Planning, any training tool(s) should be identified.

Project Planning Stage - Checklists for Success

Checklist	Description
Project Planning Checklist	Lists the activities identified in the PMH for the Project Planning Stage; can be used to verify that the components outlined in this stage have been addressed.
Deputy Minister's Guide to Successful IT Projects	Consider the questions on the first page and in the first section of the checklist, *'Should the Project be Started?'*.
Project Manager's Guide to Successful IT Projects	Consider the questions in Part 1, Section IV, *'Corporate Project Management Discipline'*, and in Section V, *'Risk Management'*.

Project Execution Stage

Against the project plans and project organization structure defined in the planning stage, the project activities are executed, tracked and measured. The project execution stage not only includes the completion of planned activities, but also the evaluation of the success and contribution of this effort and the continual review and reflection of project status and outstanding issues against the original project business case.

It is important that project execution rely heavily on the plans developed in the previous stage. There is enough work to do within this stage of the project, that it is not practical nor desirable for the project team to "invent" ways of dealing with realized risk, change requests, training and resource issues, and other such obstacles to progress.

It is also critical during the execution stage that the project manager supports and monitors the execution of other important project plans such as the communications plan, the review and audit plans, and the gating.

A Systems Development Life Cycle Methodology (SDLC) outlines the specific development activities and approaches for the project. The Project Execution Process, on the other hand, outlines the overall project management and support processes that need to take place to ensure that the SDLC execution can be effective.

Why do we need a Project Execution Process?

- A Project Execution Process ensures that project activities are carried out in an effective and efficient way and ensures that measurements against project plans, specifications, and the original project business case continue to be collected, analyzed and acted on throughout the project life cycle.
- Without a defined project execution process, each project team will execute projects using their own "best practices", experience, and methods and certain control, tracking and corrective action activities may be missed.

Project Execution Roles and Responsibilities

See also General Roles/Responsibilities

Project Leader

- Ensures that appropriate gating meetings, audit, and project reviews are conducted as outlined in the project plans, and additionally as necessary.
- Ensures that adequate documentation is being kept (as outlined in the project documentation plan) to provide a clear audit trail about project performance, decisions made, changes in scope or configuration and resource or project issues.

IT Project Manager

- Is responsible for overseeing the project activities and for tracking, analyzing, evaluating and reporting project activity.
- Also responsible for implementing risk management plans (designed in the Planning Stage), as necessary throughout the project.
- Completes and maintains the appropriate documentation to track and record project progress, changes, issue resolution and decision making during the project life cycle.

Stage Content:

- Management Activities
- Infrastructure Activities
- Improvement Activities
- Checklists for Success

Project Execution Stage - Management Activities

The project execution management activities include those activities most tightly linked to the management of the process and control of the scope and deliverables of the project.

These activities allow the project manager and other project stakeholders to address potential issues, risks, and barriers to project success and to prepare in advance, methods and processes for dealing with such events if they arise during the project life cycle.

These activities govern the overall process of the project execution by laying a foundation within which the project deliverables will be completed, and the project objectives achieved.

Content:

- Acceptance
- Business Continuity Management
- Change Management
- Communication Management
- Contract Management
- Estimating
- Gating
- Issue/Problem Management
- Metrics
- Operations and Maintenance Handover
- Project Administration
- Risk Management

Project Execution - Acceptance

Acceptance is initially considered during the Project Planning stage. During the Project Execution Stage, the Acceptance Test Plan is completed and implemented.

Project Execution Acceptance Roles/Responsibilities

See General Roles/Responsibilities.

Acceptance Execution - How to do it?

The Acceptance Test Plan is refined and implemented during the Execution Stage. Test results should be captured and filed.

Project Execution - Business Continuity Management

Within the Project Execution Stage, Business Continuity Management is handled within the Project Administration activity and does not require a separate activity. In this stage, the Business Continuity Plan identified during the Planning Stage is executed and the Project Manager ensures that adequate measures are taken to prepare for, document, and control the Business Continuity aspects of the product being developed.

Project Execution - Change Management

Change Management is initially considered during the Project Planning Stage. During the Project Execution Stage, the Change Management Plan is completed and implemented.

Project Execution Roles/Responsibilities

See General Roles/Responsibilities.

Change Management Execution - How to do it?

The Change Management Plan is created during the Project Planning Stage. The Change Management Plan is refined and implemented during the Execution Stage.

If your Department's approach does not include anything other than a Change Management Procedure and Plan, templates for additional documentation that you may wish to use are given below:

- Change Request Form

Project Execution - Communication Management

Communication Management is initially considered during the Project Planning Stage. During the Project Execution Stage, the Communication Management Plan is completed and implemented.

Project Execution Roles/Responsibilities

See General Roles/Responsibilities.

Communication Management Execution - How to do it?

The Communication Management Procedure and Plan are created during the Project Planning Stage. The Communication Management Plan is refined and implemented during the Execution Stage.

If your Department's approach does not include anything other than a Communication Management Procedure and Plan, templates for additional documentation that you may wish to use are given below:

- Meeting Guideline

Project Execution - Contract Management

Contract Management is initially considered during the Project Planning Stage. During the Project Execution Stage, the Contract Management Plan is completed and implemented.

Project Execution Roles/Responsibilities

See General Roles/Responsibilities.

Contract Management Execution - How to do it?

The contract management Procedure and Plan are created during the Project Planning Stage. The Contract Management Plan is refined and implemented during the Execution Stage. Contracts are given a final review/evaluation during the Project Close Out Stage.

If your Department's approach does not include anything other than a contract management Procedure and Plan, templates for additional documentation that you may wish to use are given below:

- Contract Review Form

See also Joint Review for information on supplier/contractor review meetings.

Project Execution - Estimating

Within the Project Execution Stage, managing the estimates created in the Project Planning Stage are handled through the Project Administration activity. Where necessary, re-estimating of the project estimates occurs by referring back to the Planning Stage estimating activity.

Project Execution - Gating

Gates are initially considered during the Project Planning Stage. During the Project Execution Stage, the Project Plan (which identifies gates) is completed/maintained and gates are implemented.

Project Execution Roles/Responsibilities

See General Roles/Responsibilities.

Gate Execution - How to do it?

The Gating Procedure and Project Plan are created during the Project Planning Stage. Gates are implemented during the Execution Stage by holding gate review meetings and formally "passing" each gate.

If your Department's approach does not include anything other than a Gating Procedure, templates for additional documentation that you may wish to use are given below:

- Gate Review Form

See also Joint Review for information on gate review meetings.

Project Execution - Issue/Problem Management

Issue/Problem Management is initially considered during the Project Planning Stage. During the Project Execution Stage, the Issue/Problem Management Plan is completed and implemented.

Project Execution Roles/Responsibilities

See General Roles/Responsibilities.

Issue/Problem Management Execution - How to do it?

The Issue/Problem Management Procedure and Plan are created during the Project Planning Stage. The Issue/Problem Management Plan is refined and implemented during the Execution Stage.

If your Department's approach does not include anything other than an Issue/Problem Management Procedure and Plan, templates for additional documentation that you may wish to use are given below:

- Issue/Problem Report Form

Project Execution - Metrics

Metrics are initially considered during the Project Planning Stage. During the Project Execution Stage, the Project Metrics Plan is completed and implemented.

Project Execution Roles/Responsibilities

See General Roles/Responsibilities.

Metrics Execution - How to do it?

The Metrics Guideline and Plan are created during the Project Planning Stage. The Metrics Plan is refined and implemented during the Execution Stage.

If your Department's approach does not include anything other than a Metrics Guideline and Plan, templates for additional documentation that you may wish to use are given below:

- Metrics Usage Table
- Timesheet Form

Project Execution - Operations and Maintenance Handover

In the Project Execution Stage the Project Manager ensures that the requirements for the Operations and Maintenance Handover are fulfilled. This is handled through the Project Administration activity and reflects back to the Operations and Maintenance Handover Plan developed in the Planning Stage.

Project Execution - Project Administration

Project administration is initially considered during the Project Planning Stage when a Project Charter is created. During the Project Execution Stage, the Project Charter is implemented and modified as necessary.

Project Charter modifications may result from such things as:

- new estimates of work still to be done (generated as more detailed information is known about outstanding work)
- changes in scope/functionality of end-product(s)
- resource changes
- unforeseen circumstances

In addition to keeping the Project Charter current, project administration involves monitoring the various Execution Stage activities (and aiding them as appropriate), monitoring risks, reporting status, and reviewing/authorizing project changes as needed.

Project Administration Roles/Responsibilities

See General Roles/Responsibilities.

Project Administration Execution - How to do it?

If your Department's approach does not include anything other than a Project Administration Procedure and Plan, templates for additional documentation that you may wish to use for various project administration activities are provided below:

Identifying the cause of project problems and taking action to eliminate/prevent them:

- Corrective and Preventative Action Procedure
- Corrective Action Form

Tracking time spent on project activities by team members:

- Timesheet Recording Procedure
- Timesheet Form

Receiving status reports from team members:

- Team Status Report Form

Giving project status reports to management:

- Project Management Status Report Form

Project Execution - Risk Management

Risk Management is addressed initially in the Project Planning Stage. During the Project Execution Stage, the Project Manager implements the Risk Management Plan within the Project Administration activity. If sufficient risk management planning was not initially completed for the project, the Project Manager may have to refer back to the Project Planning activities to complete the risk management planning "mid-stream".

Project Execution Stage - Infrastructure Activities

Within the project execution stage, there are a number of supporting, or infrastructure activities that will aid in the completion of project deliverables. These activities support the quality and content aspects of the project and ensure that the appropriate review and consideration is given to deliverables, process, and progress.

Whereas the Execution Management Activities define the overall project management framework (the process), the Execution Supporting Activities influence the integrity, quality, and completeness of the deliverables (content).

Content:

- Configuration Management
- Documentation
- Internal Audit
- Joint Review
- Quality Management
- Tool Usage
- Validation
- Verification

Project Execution - Configuration Management

Configuration Management is initially considered during the Project Planning Stage. During the Project Execution Stage, the CM Plan is completed and implemented.

Project Execution CM Roles/Responsibilities

See also General Roles/Responsibilities. Any specific CM Roles/Responsibilities are described below.

Development Team Member(s)

- The Configuration Librarian is responsible for the operation of the CM system, for the education of staff on its use, and for the production of reports as required by project organizations.

CM Execution - How to do it?

The Configuration Management Procedure and Configuration Management Plan are created during the Project Planning Stage. The Configuration Management Plan is refined and implemented during the Execution Stage.

If your Department's approach does not include anything other than a Configuration Management Procedure and Plan, templates for additional documentation that you may wish to use are given below:

- Configuration Management Handover Form
- Version Identification Procedure

Project Execution - Documentation

The Documentation Plan developed during the Project Planning Stage is executed in this Stage through the Project Administration and Configuration Management activities.

Project Execution - Internal Audit

The Internal Audit schedule identified in the Project Planning Stage is exercised in the Execution Stage. The Project Manager works within the Project Administration activity to ensure that the internal audits are conducted and that the results are appropriately recorded and acted on, as necessary. Where issues or problems arise as a result of the internal audits, the Project Manager develops an action plan to address the items within the scope of the overall Project Administration framework.

Project Execution - Joint Review

Joint Review is initially considered during the Project Planning stage. During the Project Execution Stage, the Joint Review Plan is completed and Joint Reviews are implemented.

Project Execution Joint Review Roles/Responsibilities

See General Roles/Responsibilities.

Joint Review Execution - How to do it?

The Joint Review Procedure and Joint Review Plan are created during the Project Planning Stage. The Joint Review Plan is refined and Joint Reviews are implemented during the Execution Stage.

If your Department's approach does not include anything other than a Joint Review Procedure and Plan, templates for additional documentation that you may wish to use are given below:

- Review Meeting Minutes Form

Project Execution - Quality Management

Quality Management is conducted in the Project Execution stage within the context of the Project Administration Activity. The Project Manager ensures that the Quality Plan created in the Project Planning Stage is adhered to and that any deviations from the defined quality standards (identified through internal audits and/or joint reviews) are managed and corrected.

Project Execution - Tool Usage

There is no separate activity for Tool Usage within the Project Execution Stage. Rather, the Project Manager ensures that the tools being used within the project adhere to those outlined in the Tool Usage Plan created during the Project Planning Stage. This is done through the Project Administration activity.

Project Execution - Validation

Independent Validation Test (IVT) is initially considered during the Project Planning Stage. During the Project Execution Stage, the IVT Plan is completed and implemented.

Project Execution IVT Roles/Responsibilities

See General Roles/Responsibilities.

IVT Execution - How to do it?

The IVT Procedure and IVT Plan are created during the Project Planning Stage. The IVT Plan is refined and implemented during the Execution Stage.

Project Execution - Verification

The project Verification Plan is developed in the Project Planning Stage. In the Project Execution Stage the plan is managed within the Project Administration Activity.

Project Execution Stage - Process & Performance Improvement Activities

The Improvement Activities are considered during the Project Planning Stage and the plans developed to address them are managed in the Project Execution Stage.

The process and performance improvement activities identified within the scope of this Handbook include the following:

Content:

- ISO/IEC 12207 Tailoring
- SDLC/Methodology
- Training

Project Execution - ISO/IEC 12207 Tailoring

The Tailored ISO/IEC 12207 document was developed in the Project Planning Stage and the implementation of that tailoring within the project life cycle is managed during the Execution Stage within the Project Administration activity.

SDLC/Methodology

The use of the SDLC/Methodology within the project life cycle was defined in the Project Planning Stage. During Project Execution, the Project Manager ensures that the SDLC/Methodology is being utilized according to plan and that the appropriate controls and discipline related to it are adequately implemented. This is done within the Project Administration Activity of the Project Execution Stage.

Project Execution - Training

The project Training Plan is developed in the Project Planning Stage. In the Project Execution Stage the training plan is managed within the Project Administration Activity, ensuring that resources are provided with the necessary and appropriate training to complete their assigned activities. The Training Plan results will be evaluated in the Project Close Out and Wrap-up Stage as part of the final project reviews.

Project Execution State - Checklists for Success

Checklist	Description
Project Execution Checklist	Lists the activities identified in the PMH for the Project Execution Stage; can be used to verify that the components outlined in this stage have been addressed.
Deputy Minister's Guide to Successful IT Projects	Consider the questions in the section '*Should the Project Continue?*'
Project Manager's Guide to Successful IT Projects	Consider the questions in Part 2 of the Checklist.

Project Close Out and Wrap-up Stage

In the absence of a formalized project close out procedure, some projects risk "never ending" and the roles between project work and ongoing operations and maintenance get blurred.

Also, within the Enhanced Framework for the Management of Information Technology Projects continuous improvement and ongoing development of processes and procedures is key to the success of the project environment. This stage provides a focused point to gather and document the project results.

Why do we need a Close Out and Wrap-up?

Project Close Out and Wrap-up provides a number of key benefits to the organization:

- a formal "end" to the project
- an opportunity to evaluate the performance of the project team members
- an opportunity to evaluate the appropriateness of the project methodology and the plan developed for the project
- a point to identify "best practices" and lessons learned, and to catalogue these within the PMO framework
- a chance to reflect on the original business case

Project Close Out and Wrap-up Roles/Responsibilities

Project Sponsor

- The Project Sponsor must ensure that the project comes to a close and that adequate hand-off is provided to the maintenance and operations teams, as appropriate.
- The Project Sponsor will ensure that the project close out activities are complete, including especially the identification of "best practices" and lessons learned, and a final analysis and evaluation of project success against the original business case.

Project Manager

- The Project Manager will be responsible for ensuring project signoff/acceptance occurs and is documented within the project deliverables.
- The Project Manager will solicit input from all project team members regarding "best practices" and lessons learned and will document these results and publish them (or make then ready for publishing) within the project repository.
- The Project Manager will coordinate and/or conduct project team member performance evaluations.

Project Team Leader

- The Project Team Leader will assist the Project Manager in conducting the project close out and wrap-up procedures as assigned.

Project Team Members

- The Project Team Members will identify project "best practices" and lessons learned within the context of their participation on the project
- Project Team Members may contribute to the performance evaluation of other project team members

Quality Assurance

- The Quality Assurance team assures that the project evaluation is complete and complies with the organization's project close out and wrap-up procedures
- The Quality Assurance team will review and discuss the project "best practices" and lessons learned with the project team.
- The Quality Assurance team will ensure that the project results have been appropriately evaluated against the original business case and that these results have been adequately documented.

The above roles and responsibilities may be detailed further within the stage activities outlined below.

See also General Roles/Responsibilities

Stage Content:

- Project Acceptance/Signoff
- Project Evaluations
- Process Improvement Recommendations
- Operations and Maintenance Handover
- Checklists for Success

Project Close Out and Wrap-up - Project Acceptance/Signoff

The definition of a project is that it has a specific start date, an end date, and a set of deliverables that achieve a defined set of objectives. The Project Acceptance/Signoff procedure supports this concept of closing out and wrapping up the project, but also supports the notion of customer acceptance and satisfaction.

Project Acceptance begins in Planning Stage with the definition of agreed upon acceptance criteria and the agreed upon acceptance process. This agreement is struck between the project team members who are creating the solution and those who represent the ultimate users of the system (usually the Project Sponsor).

Why do projects need Project Acceptance/Signoff?

Projects need to end cleanly so that:

- resources can move on to new efforts;
- solutions can be transferred successfully to operations and maintenance (see also Operations & Maintenance Handover Procedure);
- there is a clear delineation between development effort and operations and maintenance effort; and,
- the end user of the system will know that the agreed upon deliverables have been completed to meet the project objectives.

Project Acceptance/Signoff Roles and Responsibilities

The Project Manager is responsible for ensuring that the project deliverables are complete and that the acceptance criteria defined in the Planning Stage have been achieved so that signoff can occur. The Project Leader and the Project Sponsor are accountable for the actual signoff.

Project Acceptance/Signoff Procedure

The project acceptance/signoff procedure has already been defined within the Project Planning stage. In this stage of the project (project close out and wrap-up) the plan defined in the earlier stage (and refined throughout the project) is completed and confirmed with the client.

Refer back to your Department's Project Acceptance Procedure for a detailed explanation of how to define and plan for Acceptance.

Project Acceptance/Signoff - How to do it?

A project's Acceptance Plan is developed during Project Planning and then is completed during Project Close Out and Wrap-up.

The acceptance/signoff will be consistent with the process defined during the project planning stage and modified throughout the project life cycle as necessary.

Project Close Out and Wrap-up - Personnel Performance Reviews

Personnel Performance Reviews are often only done once a year, taking place just before salaries are reviewed. However, it is useful to review performance at the end of every project as well because it is hard to recall information at a later date once everyone has gone on to new things and the skills/experiences gained on the just-completed project may influence the assignment or selection of future work.

Why do projects need Personnel Performance Reviews?

- to recognize achievement
- to plan for improvement
- to highlight goals and expectations for future work

Personnel Performance Review Procedure

Refer to your Department's Personnel Performance Review Procedure for a detailed explanation of how to implement personnel performance reviews.

Project Close Out/Wrap-up Roles/Responsibilities

See General Roles/Responsibilities.

Project Close Out and Wrap-up - Project Review

A project review report (also known as a "Project Postmortem") should be written during the Project Close Out and Wrap-up Stage. The report is an opportunity to highlight what worked and what didn't, and make recommendations for improvement.

The report can review/include such things as:

- team structure
- communication management
- technical environment
- management process
- development process
- final product(s)
- any outstanding problem reports
- list of possible enhancements to the product(s)
- final project metrics (including a review of estimates vs. actuals)

The project review report can also reference the Contract Review(s) and Process Improvement Recommendations Report.

Why do projects need a Project Review?

- lessons learned and recommendations for improvement can benefit future projects
- any outstanding issues & problem reports, plus a list of possible enhancements can be passed on to the support/maintenance team(s).

Project Review Procedure

Refer to your Department's Project Review Procedure for a detailed explanation of how to implement a project review.

Project Close Out/Wrap-up Roles/Responsibilities

See General Roles/Responsibilities.

Project Review - How to do it?

The report should be written using input from all project team members; generally, review meeting(s) are held with all or groups of team members to solicit input for the report.

Project Close Out and Wrap-up - Contract Review

A Contract Review should occur for each project contractor during the Project Close Out/Wrap-up Phase.

Why do projects need Contract Review?

- to determine whether or not the Department wishes to use the contractor again in future
- to determine what contract management improvements might be necessary or desirable both when dealing with the particular contractor and in the general procedure.

Contract Review Procedure

Refer to your Department's Third-Party Contract Procedure for a detailed explanation of how to implement a final contract review.

Project Close Out/Wrap-up Roles/Responsibilities

See General Roles/Responsibilities.

Project Close Out and Wrap-up - Process Improvement Recommendations

Process Improvement Recommendations support the concept of continuous improvement and ensure that lessons learned within individual project environments is not lost. Rather, the ideas for improvement from project team members and stakeholders are critical to the development of the project management environment and must be collected, evaluated and implemented, as appropriate.

Why do projects need Process Improvement Recommendations?

The process improvement recommendations contribute to the continuous improvement of the IT development process and the overall government project environments by:

- providing project team members and stakeholders with the ability to recommend changes and improvements to the overall processes;
- ensuring that lessons learned can be applied to future projects, or can be applied within subsequent stages of larger projects;
- creating an environment of continuous process improvement by formalizing the process for collecting, evaluating and implementing such ideas.

Process Improvement Recommendations Procedure

Refer to your Department's Process Definition and Improvement Procedure for an explanation the requirements for this activity.

Process Improvement Recommendations Roles/Responsibilities

Project Manager

- The Project Manager is responsible for ensuring that all team members and stakeholders have the opportunity to contribute to the process improvement process;
- The Project Manager also consolidates the issues/problems log, change management logs, and internal audit and joint review results to collect and submit ideas for improvement in future projects or future phases of the current project.

See also General Roles/Responsibilities.

Process Improvement Recommendations - How to do it?

The Process Definition and Improvement Procedure describes the general steps for process assessment, evaluation and improvement.

A project's process improvement recommendations may be simply a list of observations and recommendations, or they may take the form of a more detailed action plan.

Project Close Out and Wrap-up - Handoff to Operations and Maintenance

The project Handoff to Operations and Maintenance Plan was developed in the Project Planning Stage. In the Project Close Out and Wrap-up Stage, it is important to ensure that the product developed moves from the "project environment" to the operations and support environment.

In the Project Close Out and Wrap-up Stage the plan developed and modified in the previous stages of the project is executed to ensure that the handover is managed and that the product can be supported at the operational level.

Handoff to Operations and Maintenance Roles/Responsibilities

Project Manager

Responsible for ensuring that the Plan developed for Handover is executed and provides the operations and maintenance groups with the sufficient knowledge, documentation and resources to support the product at the operational level.

Operations and Maintenance Management

Responsible for ensuring that they have the adequate knowledge, documentation, and resources to support the product at the operational level.

Project Close Out and Wrap-Up Stage - Checklists for Successe

Checklist	Description
Project Close Out & Wrap-up Checklist	Lists the activities identified in the PMH for the Project Close Out & Wrap-up Stage; can be used to verify that the components outlined in this stage have been addressed.
Deputy Minister's Guide to Successful IT Projects	Consider the questions in the last section of the checklist, *'What Was Learned?'*.
Project Manager's Guide to Successful IT Projects	Consider the questions in Part 3 of the checklist..

Treasury Board Project Approval Process

Information Technology projects can involve a significant investment in time and effort. To ensure that this investment is wisely allocated and that the anticipated benefits are achieved, the project opportunities must be carefully evaluated against the overall business plans of the Department, the government and against the potential risks that may impact the achievement of the project goals.

This process applies to projects that meet the criteria for Treasury Board approval. However, even if your project does not officially require the application of this policy, you may find benefit in adopting those aspects that are appropriate to improving the rigor and discipline of your project.

Why do projects need Treasury Board Approval?

Not all government projects require Treasury Board Approval. Those that do are governed by the Information and Administrative Management Component of the Treasury Board Manual, Project Approval Policy (Chapter 2-1). This policy has been defined:

> "To ensure that projects proposed for approval, by the sponsoring Minister or, where required, by the Treasury Board can receive informed and effective consideration".

Treasury Board Project Approval Procedure

The Treasury Board Project Approval Procedure is outlined in Chapter 2-1 of the Treasury Board Manual, Project Approval. This Policy document states:

"It is government policy that:

> Treasury Board approval for capital, lease and information technology projects be sought where:
>
> - the total estimated cost of the project exceeds the level that the sponsoring Minister can approve;
> - during implementation, the project costs to complete the project exceed, either the level that the sponsoring Minister can approve or the limits previously approved by the Treasury Board; or
> - there has been significant change to the baseline established in the initial Treasury Board approval for the project.
>
> All projects submitted for approval be supported by documentation that adequately describes the full scope of the project including the associate management framework; and,
>
> All projects proposed for approval be reviewed to ensure that they represent an effective and efficient solution to the operational needs as set out in the department's defined priorities or in the Long-term Capital Plan (LTCP)."

The Policy further states that:

> "The policy applies to projects and to capital, lease and information technology projects as defined in the Glossary of this volume [link to the definition]. It applies to all such projects funded in whole or part by the federal government regardless of the method of acquisition."

Project Planning Roles/Responsibilities

See General Roles/Responsibilities

Additional/specific roles may be defined within each activity below.

Content

Where your project meets the above requirements, the Treasury Board Project Approval process must be followed. This process includes:

- Summary of Treasury Board Project Approval Process
- Major Crown Projects
- Information Technology Projects
- Supporting Procedures
- Checklists for Success

Treasury Board Project Approval Process - Approval Criteria

If the total estimated cost of a project exceeds the level that the sponsoring Minister can approve, then the Department must follow the Treasury Board Approval process. The approval level for each Department has been well defined within the Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-1, Appendix E.

What are the Departmental Limits?

The following is a compilation of authority limits provided specifically by Treasury Board to individual ministers. This compilation is taken from Appendix E of the above mentioned manual and is provided for information purposes only. Confirmation of the correctness and status of these limits should be completed prior to project approval submission.

Treasury Board Approval Process Summary

The Treasury Board Project Approval Process is fully documented in the Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-1.

Identification: Departments must identify collections of activities that constitute projects under this policy and manage them accordingly.

Cost-effectiveness: All project proposals must clearly reflect a cost-effective approach to meeting the operational needs set out in the Long-Term Capital Plan or other appropriate departmental documentation.

Process: To ensure projects are planned and executed in a timely and effective manner, departments must institute an efficient project approval and review process.

Approval authority: The approval authority will establish an agreed upon project baseline when approving the project. Any significant deviations from this baseline must be authorized by the appropriate approval authority.

Project scope: All project proposals must be supported by appropriate documentation that describes the scope of the project in terms of such elements as key deliverables, phasing to manage risk, timing, contracting strategy, special requirements, and project management. When departments have already prepared project briefs, these will constitute appropriate documentation.

Project phases: To provide for adequate departmental approval and control, project implementation must be broken down into phases corresponding to natural decision points. Chapters 2-2 and 2-3 of this volume provide guidance on this and other project management matters.

Treasury Board approval: The department must obtain Treasury Board approval for a capital project (including leases and information technology projects) when the total estimated cost exceeds the level that the sponsoring Minister can approve (see Appendix E of the Policy Manual). Only those specific phases of the project that have been appropriately defined and costed can be approved.

Proposals: There are three types of proposals that may be submitted for Treasury Board approval:

Preliminary Project Approval (PPA) and authority to proceed with all or part of the project's definition phase.

Effective Project Approval (EPA) to obtain authority to implement the project.

Single submission: Some projects do not require an extensive project definition phase. In these cases, departments may seek only EPA. This single submission must provide the information required in both PPA and EPA submissions.

Omnibus submissions: Departments may group several related projects together in omnibus submissions. Departments may also, when appropriate, request PPA, EPA, or LPA through the LTCP or through the Multi-Year Operational Plan.

Information technology projects: Information technology projects must be developed and implemented in conformance with the strategic directions that have been established by the government. Appendix D (of the Policy Manual) details specific submission requirements for information technology projects. Further information on requirements for information technology projects maybe obtained in the Information management volume of the Treasury Board Manual or by contacting the Office of Information Management, Systems and Technology, Treasury Board Secretariat.

Project brief: This is a detailed description of the project, including its scope. IT shows the relationship of the project to departmental priorities and the Long-term Capital plan. In additional, the project brief summarizes the analysis of the options that were considered and why the proposed project is the preferred solution. It also provides an overview of the project management framework. A project brief must accompany all submissions for Major Crown projects; all other projects must be supported by either a project brief or other appropriate documentation that meet the requirements of Appendix A through D. Appendix F provides the detailed requirements for a project brief. Where the requirements outlined in Appendix A through D are covered in the Requirements Specification, Business Case, Project Charter and other project-specific documentation, these documents will be accepted in place of a separate project brief.

Cost overrun: A project is in a cost overrun condition when the current "estimate at completion" exceeds the currently approved cost objectives, without any corresponding changes in the scope of the project. If the total estimated cost of the project then exceeds the level that the sponsoring Minister can approve, the department must submit the project for Treasury Board approval. If Treasury Board EPA had been provided, a revised EPA would be required.

Financial information: Departments must provide project financial information in Part III of the Estimates in accordance with Chapter 3 of the Guide to the Preparation of Part III of the Estimates and the Treasury Board Manual, Chart of Accounts volume.

Treasury Board Project Approval Process - Preliminary Project Approval (PPA) Proposal Requirements

"Departments normally request PPA when the initial project planning and identification phase is completed but before the project definition phase starts. The formal Treasury Board approval process may be tailored to individual projects and departments, depending on the nature of the risks involved in those projects. Departments should plan and coordinate submissions for approvals to minimize administrative overhead" [taken from Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-1, Appendix A].

Summary of Requirements & Process

Proposal

1. The proposal must list all authorities being sought from the Treasury Board, including:
    - the cost objective for the project definition phase, which will establish the total amount of funds approved by the Treasury Board for the purposes of defining the project.
    - all other objectives that have been deemed by the department, in consultation with the Treasury Board Secretariat, to be sufficiently critical to require specific authority by the Treasury Board.
2. Once approved, these objectives will serve as the project baseline for monitoring by the Treasury Board.

Supporting Documentation

3. In either the body of the submission or the project brief (when appropriate) include:
    - The background section identifying the program requirement and providing justification that it directly relates to the department's goals and responsibilities and can be addressed through the effective design and implementation of the appropriate project.
    - The total project cost estimate (consistent with Appendix G) of the total cost and annual cash flow estimate for the overall project including:
        - The indicative estimate that will be refined and improved as the project definition phase proceeds.
        - This estimate is provided to Treasury Board ministers for information and is not in any way approved by the Board. It is an important consideration as to whether or not PPA will be granted and as such, departments should ensure that the estimate is as accurate as possible at the time they request PPA.

- The overall project schedule provides an estimated milestone schedule for the overall project.
- The summary of comprehensive cost-benefit and options analyses.
- The risk assessment.
- The project management approach.
- The outstanding issues section.
- Other objectives, if deemed appropriate in consultation with the Treasury Board Secretariat:
    - schedule objective
    - performance objective
    - procurement strategy

4. Other Sections (as required).

Approval

5. Treasury Board approval of the PPA will be in the form of a decision letter which may include changes to the proposed objectives, as well as other direction from the Treasury Board.
6. The department is accountable to the Treasury Board for meeting the established baseline and any other directions set out in the decision letter.

Roles and Responsibilities

"In providing PPA, Treasury Board ministers agree that a program requirement has been identified and there is adequate justification for meeting that requirement through a particular project. PPA also provides authorization to expend resources to fully define the selected project option."

Treasury Board Project Approval Process - Effective Project Approval (EPA) Proposal Requirements

"Departments submit for EPA before starting the project implementation phase. For those project where the Treasury Board has not provided a PPA, the EPA must include all information required for PPA. The formal Treasury Board approval process may be tailored to individual projects and departments, depending on the nature of the risks involved in those projects. Departments should plan and coordinate submissions for approvals to minimize administrative overhead" [taken from Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-1, Appendix B].

Summary of Requirements & Process

Proposal

- The proposal must list all authorities being sought from the Treasury Board, including approval for implementing a particular project.
- The proposal must include the cost objective for the project implementation phase, including:
    - The cost objective refers to the substantive estimate (as defined in Appendix G) of the total resources to be approved by the Treasury Board for implementing the project.
    - For multi-year undertakings, costs must be expressed both in constant and current dollars and must include, the costs of employee benefit plans (20 percent of salaries) for all salaries charged to the project, the costs for government project management and normal contingencies such as for inflation and foreign exchange.
- The proposal must also include any other objectives that have been deemed by the department, in consultation with the Treasury Board Secretariat, to be sufficiently critical to require specific authority by the Treasury Board.
- Once approved, these objectives will serve as the project baseline for monitoring by the Treasury Board.

Supporting Documentation
In either the body of the submission or the project brief (when appropriate) including:

- The outstanding issues section.
- A section which provides further cost information supporting the cost objective included in the proposal. The cost estimate must include separate line items for major risk factors.
- The formal risk assessment.
- The project management approach.

- A description of agreements which provides full details of agreements for international cooperation, federal-provincial arrangements or agreements with other government departments.
- The administrative requirements.
- A communications plan.
- A detailed project objectives section, including, as appropriate:
    - a schedule objective;
    - a performance objective;
    - an industrial and regional benefits objective;
    - other national objectives.
- Departments must estimate future operating and maintenance expenditures.

Approval

- Treasury Board approval of the EPA will be in the form of a decision letter, which may include changes to the proposed objectives as well as other direction from the Treasury Board.

The department is accountable to the Treasury Board for meeting the established baseline and any other directions set out in the decision letter.

Treasury Board Project Approval Process - Major Crown Projects

All projects require the discipline of a well-thought out planning process and strong project management framework. This applies even more so to Major Crown Projects.

Why do Major Crown Projects require special treatment?

This policy is designed to achieve effective and economical management of Major Crown Projects with visible and clearly established project leadership.

Major Crown Projects Procedure

The Project Management Handbook outlines the minimum mandatory requirements for the management of all projects within the applicability limits defined within Chapter 2-2 of the Treasury Board Manual, Information and Administrative Management Components, Capital Plans, Projects and Procurement.

The Manual further sets out the additional requirements for the management of Major Crown Projects.

Major Crown Projects Process - How to do it?

A project is deemed to be a Major Crown Project when its estimated cost will exceed $100 million and the Treasury Board would assess the project as high risk.

However, Treasury Board may require any project exceeding the sponsoring minister's delegated project approval authority to be managed as an MCP.

As well, provision is made in this policy for a sponsoring department to request approval from Treasury Board to manage a project exceeding $100 million but of lesser risk within a tailored MCP regime or outside the MCP management framework.

The additional aspects of managing MCPs include obtaining approval-in-principle from Cabinet for an MCP having significant policy or fiscal framework implications, and the following Treasury Board mandatory requirements:

- that the project leader be a senior manager within the sponsoring department accountable directly to the deputy minister;
- that the project leader be viewed as personally and visibly accountable for all aspects of the project;
- that a Senior Project Advisory Committee (SPAC) be established with membership consisting of senior representatives of departments participating in the project. The role of this committee is to advise the project leader on all aspects of the project and to carry out the procurement review function for the project;
- the selection and implementation of an appropriate project performance measurement system;

- the submission of progress reports to Treasury Board at key events or as directed by Treasury Board; and,
- the submission of a project evaluation report to Treasury Board.

Details

The requirements for Major Crown Projects are further detailed in the following sections:

- Project Management
- Responsibilities
- Submission Requirements

Major Crown Projects - Project Management

In addition to the need for sponsoring departments to coordinate and obtain approval-in-principle from Cabinet for MCPs having significant policy implications or affecting the fiscal framework, it is the policy of the government that Major Crown Projects be managed within a special regime:

- having a well defined accountability framework focused on an individual senior manager within the sponsoring department as project leader directly accountable to the deputy minister or designate, and involving senior managers of participating departments;
- with the project leader being personally responsible for overall project planning, definition and management;
- having a comprehensive and coordinated definition of scope including full procurement review considerations;
- being managed in a manner sensitive to risk, complexity and economy of resources;
- with mandatory performance monitoring, reporting and evaluation requirements.

The Policy Requires that the project management framework for MCPs include:

Management requirements: The other chapters of the Treasury Board Manual, together with the referenced TB policies, provide the minimum management requirements for all projects. This policy chapter sets out additional mandatory project management requirements for all projects deemed to be MCPs.

Accountability for projects: Sponsoring departments must establish an accountability framework for responsible definition and implementation of MCPs. The central focus of this framework is a senior manager within the sponsoring department who is appointed as the project leader. (The project leader role is further defined in Appendix A of Chapter 2-3.)

Senior Project Advisory Committee (SPAC): The project leader must establish a Senior Project Advisory Committee (SPAC) early in the planning phase for the MCP. Further details regarding the role of the SPAC are provided in Appendix B of Chapter 2-3.

Authorities and resources: From project inception, sponsoring departments must allocate authorities and adequate resources appropriate to the scope, complexity, and risk of the project.

Project scope: The project leader is accountable for the full definition of the scope for the project, and any changes thereto, including procurement review considerations and wider interests of the government.

Management framework: A project is deemed to be an MCP when its estimated cost will exceed $100 million and the current assessment is that the level of project risk is high. TB is the final authority on the level of the risk assessment and reserves the right to require any project exceeding the sponsoring department's delegated authority to be managed as an MCP.

Monitoring

Departments are to monitor the application of this policy by their project leaders. Treasury Board Secretariat will monitor departmental compliance with the intent and the specifics of this policy through review of project approval submissions.

The Administrative Policy Branch, Treasury Board Secretariat, will periodically review the effectiveness of this policy.

More Information

Further details on these requirements are outlined in Chapter 2-3 of the Treasury Board Manual, Information and Administrative Component, Capital Plans, Projects and Procurement.

Major Crown Projects - Project Roles & Responsibilities

Major Crown Projects require highly skilled project management resources and the focused effort and attention of the senior project team members. The MCP Policy defines the following additional project responsibilities.

Project Leaders: Project leaders must notify other federal government departments or agencies that have general responsibilities within SPACs or that may be affected by a specific project, inviting them to participate in an active or coordinative role as appropriate.

Participating Departments: Participating departments are to determine the nature and degree of the effect of the proposed project on their operations, asset base or other interests. They then respond to the project leader, defining the nature and extend of proposed participation in the project. Joint commitment to any project-specific activity to be carried out by a participating department, which his deemed essential to the success of the project by the Project Leader, must be documented in an appropriate interdepartmental agreement. (Appendix E of Chapter 2-2 contains a model Interdepartmental Agreement.)

Participating departments are to select their representatives from within senior management levels and based upon criteria including: project management experience and abilities, and the significance, scope, complexity, risk and visibility of the project.

Contracting Authority: The contracting authority is responsible:

- for participating in the project as a participating department (see above);
- to ensure the legal soundness of any contract and to maintain the government standards of prudence, probity and equity when dealing with the private sector;
- to support the project in accordance with any existing legislation or general interdepartmental arrangements;
- to provide any project-specific services (such as procurement) as described in any agreement or MOU concluded with the sponsoring department; and,
- to make submissions to the Treasury Board for authority to enter into contracts and to amend contracts as set out in the Contracting volume of the Treasury Board Manual.

Treasury Board Secretariat: The Treasury Board Secretariat is responsible for:

- advising departments on the practical application of this policy to each project;
- assessing, in consultation with the sponsoring department, the merits of managing a project that is deemed to be an MCP, with only selected MCP management controls or outside the full MCP management framework;
- advising the Treasury Board on the merits of MCP submissions, communicating the decisions of the Board to the submitting department, recommending a reporting schedule

designed to keep ministers informed of the MCP's progress, and liaising with sponsoring departments to ensure that appropriate MCP management information is presented when required by the Board.

Major Crown Projects - Submission Process

Whenever it is necessary that a Cabinet committee consider the strategic direction of an MCP, the sponsoring department must consult with Treasury Board Secretariat so that its views on the financial and policy impact are included in the Memorandum to Cabinet.

MCP Submission Procedure

The Submission Requirements for MCPs are outline in Appendix C of Chapter 2-3 of the Treasury Board Manual, Information and Administrative Component.

MCP Submission Process - How to do it?

The process is summarized here for reference but further details should be obtained from the policy manual.

Summary of Submission Process

Consultation with Treasury Board Secretariat: Before preparing submissions for, or amendments to a project or contract approval, the sponsoring department and the contracting authority, respectively, should seek advice from Treasury Board Secretariat to ensure that ministers are provided with the appropriate supporting information. The sponsoring department may use the PPRA, or less formal means as appropriate, for this purpose.

Submissions: Submissions for project approval must be concisely written and in accordance with the format and content requirements of Chapter 2-1 of the Treasury Board Manual. In addition, the PPA, EPA or LPA must be accompanied by an updated Project Brief.

Project Brief: The purpose of the project brief is to replace or supplement, as required, the function of the departmental Long-term Capital Plan for a particular MCP. It must describe the estimated impact of the complete MCP on the fiscal framework, any impact on existing or proposed legislation or government policy, and nay direction received. It must show the relationship between the project, government objectives, departmental priorities and long-term strategic planning.

Amendments to previous approvals: The sponsoring department must inform Treasury Board immediately if it determines that approved project objectives must be changed or cannot be met within the expenditures authorized. TBS will advise the department if a submission is required. Amendment requests must include:

- a detailed statement of the reasons for the submission;
- an explanation of what actions have been taken or considered by the department;
- the sponsoring department's communications plan must be referred to, as appropriate;

- a recapitulation of approvals received to date;
- a comprehensive explanation for changes required to cost, schedule, technical performance, industrial and regional benefit, or other approved objectives and to estimated cash flow;
- an assessment of options or alternatives available to the Treasury Board at the time of considering the submission, including the consequences of each, and bearing in mind the impact on the contracts, if any.

Cost Overrun: The project leader is accountable for preparing a submission to Treasury Board requesting amendment of the current EPA as soon as a significant cost overrun condition is detected. (Cost overrun is defined in the project approval policy, Chapter 2-1 of the Treasury Board Manual, Information and Administrative Component, Capital Plans, Projects and Procurement.) Increases in projected cost due to a change in the performance or schedule objectives of the project is not a cost overrun; however, these changes must be submitted for approval to the Treasury Board in the form of amendments to the submission documents (PPA, EPA, or LPA). Similarly, changes in performance or schedule proposed to avoid cost overrun must be submitted to Treasury Board for approval in the form of amendments to the PPA, EPA or LPA.

Further details of the submission process for MCPs can be found in Chapter 2-3 of the Treasury Board Manual, Information and Administrative Component, Capital Plans, Projects

Treasury Board Project Approval Process - Project Evaluation Guideline

Project Leaders should ensure that a project evaluation is performed for all projects. Project evaluation should be prepared within three months after completion of project implementation and with content consistent with this guideline.

The evaluation report should be filed with other formal project documentation as well as with those departmental authorities responsible for coordinating project management policy and procedures.

These project reports will form a valuable resource of "lessons" learned to support improvements to policy and procedures.

Sample Structure and Contents

The following is some general advice on the structure and content of the project evaluation. However, the project leader should ensure that an evaluation is prepared with depth and detail appropriate to the particular size and nature of the project.

The project evaluation should be based on the originally approved project objectives, and any subsequently approved changes. The following factors should be considered:

- attainment of objectives;
- effectiveness of any agreements between sponsoring and participating departments;
- effectiveness of the project plan, the project organization and management systems;
- appropriateness of the project management principles and practices of the sponsoring and any participating departments;
- deficiencies and problems experienced such as:
  - delays in obtaining approvals;
  - unplanned work stoppages;
  - personnel shortages;
  - outstanding items or activities not completed by project management personnel at the time of project evaluation.

Evaluations should conclude with an identification of lessons learned and suggested improvement of these guidelines for the conduct of future projects.

The Project Management Handbook contains further details regarding Project Close Out and Wrap-up procedures for all projects, regardless of whether they require Treasury Board Approval.

Treasury Board Project Approval Process - Information Technology Projects

The purpose of this section is to outline requirements that are particular to submissions for information technology projects.

In general, the information requirements outlined in the PPA and EPA process apply to information technology projects, with the modifications noted below.

Demonstrated compliance with government-wide strategies: Departments must demonstrate that the proposal satisfies he strategic directions that the government has adopted for information technology which include:

Enhancing services through the innovative use of information and technology;

Architecture - standards;

Mandate of the CIO;

Department Plans: The approach taken in the project must be consistent with the department's strategies identified in its information management plan.

Use of business case methodology: The business-case approach is the required methodology for identifying, justifying and selecting information technology projects for investments.

Costs: For either PPA or EPA, costs relate to project cost only. All direct costs should be identified including all departmental resources involved in designing, developing and acquiring software; all implementation aspects (e.g., documentation, training, testing and installation), as well as the cost of acquiring the information technology hardware.

Project brief: In most instances, a project brief will be required to explain the complexities of the business case and of the systems development (additional information on the project brief is provided in Appendix F of Chapter 2-1 of the Treasury Board Manual).

Human resources strategy: Information technology projects will usually have significant impacts on job requirements, training and staff deployment. The submission must include an analysis of the human resource impact of the proposed project and the departmental strategies for addressing these impacts, including a plan for consulting with unions and affected personnel.

Other related legislation and policies: Proposed projects must demonstrate compliance with:

Security requirements;

Information management and privacy;

Funds: Departments must provide information on operating and maintenance expenditures covering a five-year period following project implementation along with the source of funds for these expenditures.

These requirements are summarized at a high level. You should refer to the Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-1, Appendix D for more details.

Treasury Board Project Approval Process - Supporting Procedures

The Treasury Board Project Approval Process includes a number of Supporting Procedures that influence the integrity, quality, and completeness of the deliverables (content).

Content:

- Project Management
- Management of Risk
- Project Brief
- Use of Estimates

Treasury Board Project Approval Process - Project Management

Information Technology projects can involve a significant investment in time and effort. To ensure that this investment is wisely allocated and that the anticipated benefits are achieved, the project opportunities must be carefully evaluated against the overall business plans of the Department, the government and against the potential risks that may impact the achievement of the project goals.

Why do projects need Project Management?

The Project Management process is designed:

> *"To achieve effective and economical management of projects with visible and clearly established project leadership."*

[from Treasury Board Manual , Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-1]

Project Management Procedure

The Project Management Procedure is documented in the Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, Chapter 2-2, Project Management.

Project Management Roles/Responsibilities

See General Roles/Responsibilities.

The Project Management Process - How to do it?

The process for Project Management on Treasury Board projects is documented in the Treasury Board Manual referenced above

Please note that even if your project does not qualify for Treasury Board approval, the practices outlined in this procedure can be of tremendous benefit to your project team and will contribute to the successful management of your project.

Treasury Board Project Approval Process - Project Management Policy

Project Management brings discipline to the planning, organization, management, and control of a project. This significance of applying this discipline should not be undervalued as strong project management has been proven to contribute to the success of project delivery.

Project Management, however, is not for everyone. You should be sure that the person assigned to the Project Management role is well-suited to the complexity, size, and other special requirements of the project. Treasury Board has developed a document to help guide you in the selection of the Project Manager. This document (reference core competencies document).

The key areas of the Project Management policy are:

Accountability for projects: Sponsoring departments must establish an accountability framework for adequate definition and responsible implementation of projects.

Project Management principles: Departments are expected to establish and approve sound internal policies, guidelines and practices to be followed by project leaders, project managers and other staff responsible for identifying, planning, approving/budgeting, defining, and implementing projects; and for participating in projects sponsored by other departments.

Authorities and resources: From project inception, sponsoring departments must delegate authorities and allocate adequate resources appropriate to the scope, complexity and risk of the project.

Project scope: Project leaders are accountable for the full definition of the scope for all projects including the wider interests of the government. This definition of scope is to be accomplished with early consultation with other departments or central agencies affected by the project.

Management framework: Project leaders are accountable for the establishment of an adequate project management framework, for detailed project definition and to complete project implementation. IN all cases, the project leader must maintain the integrity of his or her accountability through written agreements with any previous project leaders, project managers, and any external agencies that carry out activities essential to the accomplishment of the project.

Project risk, complexity, and economy: Project leaders must ensure that project managers perform adequate project planning that addresses the size, scope, complexity, risk, visibility and administrative needs of specific projects.

Project Profile and Risk Assessment (PPRA): Early in the life of a project, the project leader is to prepare a Project Profile and Risk Assessment (PPRA), in consultation with the contracting authority and, when appropriate, with participating departments and common service organizations, as part of the process of developing the management framework within for the Treasury Board approval submissions.

Project management practices: Guidance for project management practices, and the preparation of risk assessments, PPRAs, supporting documentation, and progress and evaluation reports is provided in Appendices B through F.

As well, the responsibilities of key team members are defined within the context of this policy and include:

Project Leaders: Project leaders must notify other federal government departments or agencies who may be affected by a specific project, inviting them to participate in an active or coordinative role as appropriate. The project leader is also responsible for ensuring that all relevant project submissions and approvals have been obtained prior to initiating any part of the project. This also includes the submission of updated project information tot appropriate authorities for significant changes beyond the reporting baseline established in the original or amended approvals.

The project leaders should consult as early as possible, with Treasury Board Secretariat, particularly for larger projects of higher risk and complexity, proposing a suitable management framework for staff concurrence. Project leaders are to ensure that a specific project is managed in accordance with the approved management framework. Updated project documentation may also propose a change in management framework should the risk assessment conducted in accordance with the guidelines in Appendix C demonstrate a decrease (or increase) in project risk.

Project Managers: Project Managers are responsible for the day-to-day management of the project as set out in the charter or agreement with the project leader.

Participating Departments: Participating departments are to determine the nature and degree of the effect of the proposed project on their operations, asset base or other interests. They then respond to the project leader defining the nature and extent of proposed participation in the project. Joint commitment to any project specific activity to be carried out by a participating department that is deemed essential to the success of the project must be documented in an appropriate interdepartmental agreement.

Participating departments are to select their project officers based upon an established human resources management profile, project management experience and abilities, and in consideration of the significance, scope, complexity, risk, and visibility of the project. (See also the Project Management Competencies outline.)

Contracting Authority: The Contracting Authority is responsible:

- for participating in the project as a participating department (as per the above definition);
- to ensure the legal soundness of any contract and to maintain the government standards of prudence, probity and equity when dealing with the private sector;
- to support the project in accordance with any existing legislation or general interdepartmental arrangements;

- to provide any project-specific services (such as procurement) as described in any agreement or MOU concluded with the sponsoring department; and,
- to make submissions to the Treasury "Board for authority to enter into contracts and to amend contracts as set out in the Contracting volume of the Treasury Board Manual.

Guidelines on Basic Concepts for Project Management

The Treasury Board Manual, Capital Plans, Projects and Procurement sets out Guidelines on Basic Concepts for Project Management. See Appendix B of Chapter 2-2 for further details.

Monitoring

The Treasury Board Secretariat will monitor departmental compliance with this policy through review of the quality of the Project Management Framework and other relevant sections of project approval submissions, and by reviewing adherence to the content of Treasury Board decisions.

The effectiveness of this policy will be reviewed periodically by the Administrative Policy Branch of the Treasury Board Secretariat.

Treasury Board Project Approval Process - Project Profile and Risk Assessment (PPRA)

Adequate risk assessment and management is important for all projects regardless of dollar value (see also, Project Planning, Risk Management). The Treasury Board Manual, Capital Plans, Projects and Procurement, Chapter 2-2, Appendix C, provides a detailed description of the policy for preparing the Project Profile and Risk Assessment (PPRA).

The guideline described in the Appendix provides a framework for conducting risk assessments, for preparing the Project Profile and Risk Assessment document, for describing risk in project approval submissions, for considering the effect of the state of the risk estimate on estimating cost, and for the ongoing management of project risks.

An adequate risk assessment usually requires the contribution and expertise of the contracting authority as well as any participating departments. This is particularly important during the initial assessment, which necessarily would be based upon early project planning data. information below is a summary of this policy.

Summary of the PPRA Process

Departments should reference the Treasury Board policy on Risk Management when conducting the PPRA;

Project leaders should ensure that cost estimates, including their classification, reflect the assessed risk for the various phases of projects and that they have been developed using appropriate and comprehensive risk estimating practices in conjunction with other cost impact assessment;

The project **risk assessment** must include:

- external risk factors (circumstances over which project management cannot exert a controlling influence); and,
- internal risk factors (circumstances that project management can control).

The risk assessment should indicate on an overall project risk level as either high, medium or low. As project definition progresses, the risk assessment should be periodically updated to reflect the additional information available.

The risk assessment should consider various **factors** including, but not limited to the following:

- the affect of changes in government priorities on the department's allocation of resources to the project;
- the impact on the project of an externally imposed schedule or of time delays resulting from such things as relatively minor changes in technology; requirements of participating departments; available windows of opportunity with international partners; seasonal considerations; the need for regulatory approvals; or other similar factors;

- the availability within the private sector of the requisite capability in terms of the technology, expertise, industrial practices, management techniques or skilled and stable labour force required to undertake the project;
- the experience of the sponsoring department in managing and developing cost estimates for a project of a particular magnitude or type or its ability to assign sufficient in-house expertise;
- the size and complexity of the project;
- the availability of feasibility studies, test or user trial programs, pre-production appraisals, similar production items, reliable construction estimates, or other similar data upon which to base a risk assessment;
- the need for research, development and testing of unproved technology or assemblies of products within the scope of the project deliverables;
- the number of locations involved in completing the work critical to the end-product;
- inherent hazards of a biological, chemical, environmental, radiological, explosive, toxic or other similar nature;
- whether the continuity or availability of a portion of project funding or other project activity is contingent upon the ability of other participants, especially non-federal government participants, to meet their obligations when and as defined in the project agreements; and,
- the impact of potential contingent or residual liabilities arising from participation in joint or shared funded projects including liabilities caused by withdrawal from the project by one or more participants.

PPRA Requirements

The Policy Requirements section states that the sponsoring department is to prepare a PPRA for all projects for consultation with project participants, including Treasury Board Secretariat, regarding the appropriate management framework for an individual project. This is the management framework that will be developed and specified in the submission document for Treasury Board ministers to approve.

A PPRA document that is coordinated with Treasury Board Secretariat should record the concurrence or views of other participants in the project, or members o the SPAC, if applicable.

Particular use of the PPRA is to obtain concurrence from project participants to propose to Treasury Board that the management framework for a project:

- that has a projected total cost exceeding $100 million, may be tailored based on the current risk assessment; or,

- that has a project total cost less than $100 million but a current risk assessment of high, should include part or all of the MCP framework management controls (include proposed SPAC membership).

The department must create a database with the structure outlined in Appendix D of the Policy Manual, reflecting the current status of knowledge concerning the project.

The PPRA should be prepared as early as possible after the project leader is assigned and be updated as necessary. It should address the following:

- an outline of the political, international or strategic context in which the project is proceeding, including direction given by Cabinet as part of approval-in-principles, if applicable;
- the reporting relationships (including membership of the PSPAC, if applicable) that the sponsoring department has established or proposes for the project;
- the status of and major effects of any proposed or finalized agreements;
- the results of the current project risk assessment, including the estimated effect on project costs, and risk management strategies proposed; and,
- the proposed management framework.

Treasury Board Project Approval Process - Assessment of Risk Levels

Assessment of High Risk

A project (or element of a project) may be assessed as high risk if one or more of the above hazards exist in a significant way and, unless mitigated, would result in probable failure to achieve project objectives. Project management should prepare approaches to reduce this risk through strategies such as phased development, funded system design by private industry, prototyping, pilot systems and user trials. Project management should ensure that senior departmental management is kept fully briefed regarding these plans as well as project progress and be prepared to quickly request access to sources of expertise within the sponsoring and any participating departments as well as the contracting authority.

Assessment of Medium Risk

A project (or element of a project) may be assessed as medium risk if some of the above hazards exist but have been mitigated to the point that allocated resources and focused risk management planning should prevent significant negative effect on the attainment of project objectives.

Assessment of Low Risk

A project (or element of a project) should be assessed as low risk if the above hazards do not exist or have been reduced to the point where routine project management control should be capable of preventing any negative effect on the attainment of project objectives.

Treasury Board Project Approval Process - Management of Project Risk

Risk management involves the development of plans to conduct activities and/or assign resources to mitigate the occurrence of risk, spread the impact of risk if it occurs, and manage the impact of the risk within the project environment.

Roles and Responsibilities

Project Leader

The project leader should ensure that project management:

- initiates, during the project planning phase, a continuing process of assessing project risk;
- includes, during the project definition phase (when applicable) formal steps to reduce project risk;
- prepares outline plans for dealing with actual project contingencies;
- prepares a Project Profile Risk Assessment as defined in the Guideline and keeps it up-to-date;
- specifies these measures in the project management framework sections of project approval documentation;
- prepares revised project approval documentation when the project risk assessment changes significantly; and,
- prepares an outline of a communications plan [hotlink to communications] for high risk activities that may attract media or public attention, including the appointment of a spokesperson.

The Project Management Handbook contains further details on managing risk for any project, whether or not it requires Treasury Board Approval.

Treasury Board Project Approval Process - Project Brief

Appendix F of Chapter 2-1 of the Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement, outlines in detail the recommended structure and content of the project brief. These guidelines are summarized here for overall understanding and for review purposes but the full outline should be referenced prior to any submission.

The project brief must accompany all submissions for Major Crown Projects. While a project brief is not always required for other projects, it may be useful for submissions of complex and significant projects. It provides a summary of the full scope of the project, permitting the PPA and EPA documents to be written as succinctly as possible.

As a minimum, the project brief includes descriptions of:

1. the relationship of the project to the sponsoring department's mandate and programs and to government-wide objectives;
2. the scope, cost and other critical objectives that form the project baseline;
3. the level of service or capability to be developed or improved and a general description of the end product;
4. the benefit-cost and option analyses, and a description of each option considered;
5. the management approach to the overall project including the following:
    - the phasing of major work and the approach proposed for managing the project throughout its life;
    - the proposed timing of reports to the Treasury Board and future submissions, when required;
    - the roles of participating departments and of the different units within the department;
    - the nature and extent of consultation with the Treasury Board Secretariat and other central agencies;
    - other features of the project that could affect its progress; and,
    - the options for terminating federal involvement;
6. the estimated schedule from the start of the project definition to completion of the project;
7. agreements involving:
    - international cooperation;

- federal-provincial relations or other government programs;
- joint federal-provincial undertakings;
- environmental assessments;
- reduction of regional disparities; or
- other national objectives applicable to the project;

8. information requirements identified under "Supporting Documentation" in the PPA, EPA and LPA processes must also be included in the brief.

It should be noted that where the above details are addressed in the project's Requirements Specification, Business Case, Project Charter and other project-specific documentation, this documentation will be accepted as the Project Brief without a separate document needing to be submitted.

Treasury Board Project Approval Process - Use of Estimates

This section provides additional clarification on the use of cost estimates in the PPA, EPA and LPA submissions. Full details regarding the use of estimates in Treasury Board Submissions are included in Appendix G of Chapter 2-1 of the Treasury Board Manual, Information and Administrative Management Component, Capital Plans, Projects and Procurement.

Cost estimates must have a sufficiently high degree of quality and reliability to support Treasury Board's consideration of the project or specific phase of the project.

In general, this will be a substantive cost estimate (as defined below).

Project approval, at either the definition or implementation phase, will include a cost ceiling (or cost objective) for the specified deliverables and timeframe. This establishes the baseline objectives against which the project team and departmental management can reasonably be held accountable.

There are two types of estimates, substantive and indicative.

Substantive Estimates

The guidelines covering substantive estimates are summarized below:

- A substantive estimate is one of high quality and reliability and is based on:
  - detailed system and component design,
  - design adaptation,
  - workplans and drawings for components,
  - construction or assembly, and
  - installation.
- It includes:
  - site acquisition,
  - preparation and any special requirements estimates, and
  - contingency funding requirements (justified based on line-by-line risk assessments).
- All significant and identifiable deliverables, as well as the costs of the government's contribution to employee benefit plans (20 percent of all salaries charged to the project);
- All agreed objectives;
- Market assessment;

- The department must consult with appropriate common service organizations and its own operational and maintenance authorities when preparing the substantive estimate;
- In some cases, with the agreement of the department, the Treasury Board will use the substantive estimate as a form of a cap or design-to-cost figure;

Indicative Estimates

The guidelines governing indicative estimates are summarized below:

- An indicative estimate is an order-of-magnitude estimate that is not sufficiently reliable to warrant Treasury Board approval as a cost objective;
- It provides a rough cost projection used for budget planning purposes in the early stages of concept development of a project.
- It is usually based on:
  - an operational statement of requirement (SOR);
  - a market assessment of the products and technological availability that would meet the requirement; and
  - other considerations such as: implementation, life cycle costs, and operational savings.
- The estimate will improve as the department:
  - invests in further concept development and prepares the SOR in greater detail;
  - identifies levels of risk and the corresponding costs to reduce them;
  - carries out a preliminary analysis of sources of supply;
  - assesses technological and production readiness; and,
  - identifies and refines the activities within the project definition and implementation phases;

When developing the estimates, the department must consult with appropriate common service organizations.

Treasury Board Project Approval Process - Checklists for Success

Checklist	Description
TB Project Approval Checklist	Lists the activities identified in the PMH for Treasury Board Approval; can be used to verify that the components outlined in this process have been addressed.
Enhanced Framework Questionnaire	Presents a series of questions to address adherence of your project to the Enhanced Framework

TBS Document Cross Reference Table

Document

- Creating and Using a Business Case for Information Technology Projects
- Project Management Core Competencies as defined for the Enhanced Management Framework Project
- Treasury Board Manual, Information and Administrative Component, Capital Plans, Projects and Procurement
- Treasury Board Manual, Appendix E (Departmental Limits)
- Treasury Board Secretariat Audit Guides

IT Project Manager's Handbook - <Department Name> Procedures Information

Procedure Documents	Location
Acceptance Testing Procedure Business Continuity Procedure Change Management Procedure Communication Management Procedure Configuration Management Procedure Estimation Procedure Gating Procedure Internal Audit Procedure Issue/Problem Management Procedure Independent Validation Test Procedure Joint Review Procedure Operations & Maintenance Handover Procedure Personnel Performance Review Procedure Process Definition and Improvement Procedure Project Acceptance Procedure Project Documentation Procedure Project Management Procedure Project Review Procedure Quality Manual Requirements Specification Procedure Risk Management Procedure Software Assurance Procedure Third-Party Contract Procedure Training Procedure Verification Procedure	

Department Application of the Project Management Handbook Contents

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